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TELEGRAPHIC ADDRESS—LANCET, LONDON TELEPHONE NUMBER—5356 GERRARD

No. XIV. of Vol. II., 1911.
No. 4596. Vol. CLXXXI. LONDON, SATURDAY, SEPTEMBER 30, 1911. Pp. 136—Price 6d.

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A Presidential Address

ON

THE POSSIBLE TOXIC ORIGIN OF SOME KINDS OF INSANITY.

Delivered in the Section of Neurology and Psychological Medicine of the British Medical Association,

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MEDICAL SUPERINTENDENT, CITY OF CARDIFF MENTAL HOSPITAL.

GENTLEMEN,—It is well known that mental disorder can be produced by intoxicants (alcohol, cocaine, haschisch). It also occurs in connexion with such diseases as influenza, erysipelas, pneumonia, typhoid fever. When so occurring it cannot be always explained as due to fever or exhaustion, since it comes on in the pre-pyrexial stage (as in typhoid, variola), or the apyrexial stage (as in malaria). In these cases the mental disorder must be ascribed to a toxin.

The clinical and anatomico-pathological descriptions of various writers (Martin and Ringenbach, Franca and Anthias Spielberger, Mott, and others) show a considerable resemblance between the symptoms due to the trypanosome-toxin and those present in paralytic dementia, and some resemblance in the cerebral lesions. With sleeping sickness there is more fever. No remissions occur, I believe, in this disease, in striking contrast to general paralysis; on the other hand, I believe there is a lymphocytosis in it. As to the occurrence of the same in paralytic dementia, *vide infra*. That acute delirious mania, acute hallucinatory and confusional states are due to toxæmia is freely assumed, but has not been demonstrated.

BACTERIOLOGICAL WORK IN INSANITY.

Most of the observations as regards micro-organisms in the circulation in mental diseases are isolated and unsystematic. Most of the cases I have personally examined gave negative results, but I have found diphtheroids and cocci in general paralysis, acute delirious mania, and acute mania and melancholia. In these cases there was no known source of secondary infection. The organisms found in the blood and cerebro-spinal fluids by various workers are bacilli, including diphtheroids and B. coli, diplococci, short chains of streptococci. Acute delirious mania has been specially investigated, and by Italian workers (Rasori, Ceni, Bianchi, Piccinino). Workers in this country on the subject of the circulation of micro-organisms include Lewis Bruce, Ford Robertson, McRae and Jeffrey, Candler, Marr, Muirhead; in America, Gay and Southard. The three last-named writers have published the most systemetic work I am acquainted with.

Summarising the work of the past 20 years I should affirm that there are no adequate grounds for believing that the organisms which have been found in the tissues in any case of insanity play more than a secondary rôle. At the same time, they frequently cause death. (We fall victims, it has been said, most often to our secondary infections.) Though not shown to be of prime pathological significance, they may yet be shown to be the cause of some of the symptoms. Much more work is required in this field, and better methods of cultivation of organisms are needed.

Apart from the demonstration of diphtheroids in association with inflammatory changes in the mucosa of the digestive and respiratory tracts in general paralysis (Ford Robertson), it has not been shown that there is a local source of infection in the mucous tracts or elsewhere, such as occurs in diphtheria and tetanus, in any of the insanities. It is a pure assumption that catarrhal enteritis provides such a local source (as described by Pardo). We do not know how the mental symptoms, which are undoubtedly due to disorder of the digestive functions, with its attendant constipation, which disorder occurs in recent insanity and in exacerbations of chronic insanity, are produced. Still more marked digestive disturbance, with prodigious constipation, and symptoms of auto-intoxication, occurs in cases of intestinal stasis prior to relief by short-circuiting, and yet without mental disorder (the *irritabile* is wanting). That there is disordered action of the digestive juices, and also impaired peristalsis in some mental disorders, has been proved by Pardo and Benigni, and can be shown by adequate physico-chemical examination of the stools in these cases.

We are not yet justified in saying, as certain Italian writers, more especially, do, that the presence of indigo in the urine is evidence of toxæmia of intestinal origin, much less in attempting to correlate its presence with symptoms of insanity. We cannot yet estimate the indigo quantitatively; hence no normal standard exists.[1] Various medical books tell us that the substance in the urine which on oxidation gives indigo is indoxyl-sulphate of potassium, the precursor of which, "indigogen," is indol, which, again, is produced from tryptophane by the action of intestinal bacteria; that the "abundant presence" of indigo testifies to the activity of protein putrefaction. This naturally affords the basis for an attractive theory of auto-toxæmia in some kinds of insanity. But how can a thing be said to be "abundantly present" which cannot be quantitatively estimated? And I believe we must be candid and admit that we do not fully know what the precursors of indigo are, whether they are all derived from the intestinal contents or not.

As regards the bacteriology of the fæces in mental disorders, I am not aware of any work other than that of the Italian observer, Pardo. The following is a mere summary of work yet to be published, carried on by Mr. E. Barton White and myself at the Cardiff Mental Hospital during the past two years. One gramme of fæces from cases of acute mania and melancholia was examined in each instance, using decimal dilutions of an original solution of 1 in 100; as a control, the results with normal stool obtained by Dr. A. C. Houston of the Local Government Board were used. Cases examined, 23; total bacteria increased in 39 per cent., diminished in 26 per cent.; B. coli increased or diminished to like extent, whether as typical or atypical forms requires further investigation; the anaerobe, B. enteritidis sporogenes (? B. welchii in some cases), diminished in all but one case (in which the amount was normal), often greatly diminished; B. putrificus not found; spores of aerobic bacteria diminished in 76 per cent., in none increased; colonies isolated on agar-fuchsin made up practically of B. coli, typical in 80 per cent. of cases; the micro-organisms found were, with a few possible exceptions, those of normal stools; agglutination of B. coli very rare, and when present equal with homologous and heterologous serum. (These results agree with those obtained in 82 cases of acute mania and melancholia by Dr. Alice Johnson and myself.[2])

As far as evidence based upon formation of agglutinins goes, B. coli is neither in circulation nor responsible for any toxin which may be. But evidence based upon complement-fixation and the opsonic index is also required. Streptococci: 13 cases examined; increased in 7, diminished or absent in 4, in normal amount in 2. Our work lends no support to the statement of Pardo that the putrefactive anaerobes are increased at the expense of B. coli and B. aërogenes, the normally preponderant organisms; nor to the statement that streptococci preponderate. It is evident that much work has yet to be done in the bacteriology of stool in the acute insanities, to say nothing of physico-chemical research.

Let it be noted that Metchnikoff and his pupils have shown[3] that the three chief putrefactive anaerobes found in the human intestine produce toxins which are absorbed by the mucosa of the large intestine.

Work on the opsonic index in insanity has been done by Shaw and by Babington, who show that the index is lowered, in the acute insanities especially, to such common organisms as B. coli, staphylococcus aureus, streptococcus fæcalis, B. tuberculosis. Baccelli and Terni find a raised index in epilepsy, a normal one in dementia præcox. A greater liability to secondary infections is perhaps all this implies, such as we see in other conditions of lowered resistance—for example, diabetes, chronic nephritis.

Although there is clinical evidence of toxæmia in the so-called "intoxication-psychoses," with the exception of acute delirious mania it cannot be maintained that there is evidence comparable with that furnished by a case of pneumonia or one of the common infectious fevers. The

[1] Stanford: Journal of Mental Science, April, 1911.
[2] Brit. Med. Jour., April 9th, 1904.
[3] Annales de l'Institut Pasteur, 1908, tome xxii.

hypothetical toxin in the former instances must be of a lesser degree of virulence. Hence disordered metabolism is postulated as the cause of insanity, by way of auto-intoxication.

LEUCOCYTOSIS IN MENTAL DISORDERS.

The outstanding pathological fact which indicates a toxic pathogenesis for some of the psychoses is leucocytosis. The condition is found very commonly in acute and recent mental disorder, and in states of exacerbation during chronic insanity. The most recent workers in this field are Dide and Chenais, Klippel and Lefas, Lepine and Popoff in France; Lewis Bruce, C. MacDowall in this country; Heilemann in Germany; Graziani in Italy. I believe the following statements are justified by much personal study of this question for the past three years and by the work of these investigators. The total leucocyte count is increased in varying amounts from 11,000 to 30,000 per cubic millimetre in acute and recent mania and melancholia (senility excluded), and in the periodic exacerbations of chronic cases of the same. Should the count fall in the course of the disease it rises again to rather above normal towards the close of the attack in cases which recover, and remains fairly high on recovery. In acute mania and melancholia the percentage proportion of the neutrophile cells is increased in the early phases of the disease, also towards the close of the attack when recovery is to take place. In these disorders a low total count and a fall in the normal percentage of neutrophiles, if maintained, are of bad augury, and point to the onset of dementia. As regards dementia præcox, in the active phase there is some, but no considerable increase in the total number of leucocytes; neutrophiles are diminished, and lymphocytes, mononuclears, and eosinophiles increased. Cases of systematised delusional insanity do not exhibit leucocytosis.

As a generalisation, in the acute and recent mental disorders there is leucocytosis with percentage increase of the polynuclear cells; in the subacute and chronic ones there is little or none, and the proportion of large mononuclears and lymphocytes is increased. In acute mental disorders absence of leucocytosis and a fall in the percentage-proportion of polymorphs go with deficient reaction, and are an unfavourable indication, as is the case in those infectious fevers in which leucocytosis is observed. This, from the standpoint of toxæmia, is significant.

In regard to paralytic dementia, in the first period, while still the patient is well nourished and active there is leucocytosis with proportional increase of neutrophiles; in the succeeding periods lymphocytes and mononuclears are increased at their expense, but it is to be noted that, even in these, exacerbations are accompanied by a rise in the neutrophile count. In six cases of well-marked remission recently examined by me the lymphocytes, transitional cells, and mononuclears (especially the last two varieties) were notably increased at the expense of neutrophiles. (Incidentally, three showed eosinophilia.) My friend, Dr. H. A. Schölberg, pathologist, of Cardiff, reminds me that in protozoal maladies (sleeping sickness, syphilis, malaria) the reaction of the white cells towards infection is by lymphocytosis, not leucocytosis. If further experience shows that there is the same reaction in general paralysis a point of great significance will have been made out. The Wassermann test shows that in general paralysis we have a disease which is syphilitic *au fond;* its essential cause becomes, I think, again operative under privation and stress; further evidence of this may be found in the mode of reaction of the white cells (lymphocytosis). We should then look upon the polymorphonuclear increase as merely a reaction to a secondary infection, such as would cause acute phases and exacerbations in the malady. If this line of reasoning prove correct an explanation would be available for the favourable results reported by von Wagner and Pilcz, of Vienna, who prolong remissions and ameliorate the disease by injections of tuberculin, for by this means lymphocytosis is promoted. There is no mention of the state of the white-cell count in the papers by Pilcz which I have consulted.

We have still no safe and reliable means of bringing about recovery in mental disorders, such as is seen in connexion with intercurrent disease (for example, pneumonia, erysipelas, cellulitis), in association with fever and hyperleucocytosis. Turpentine, yeast, cinnamate of soda, sodium nucleinate (introduced by Donath of Budapest and Fischer of Prague), all are unsatisfactory. The "reaction" is not pronounced enough, nor does it last long enough. Some of us are seeking to elaborate other methods, of which it is too soon to speak.

OBSERVATIONS ON METABOLISM.

In conclusion, the following few observations on mental disturbances in autotoxæmia. Such, amounting to insanity in predisposed persons, occur in various maladies in which the nutrition is impaired, or in which metabolism and depuration are altered or hindered. Thus, in diseases of the heart, kidneys, liver; in rheumatism, gout, or chlorosis; in diabetes. We know that the like mental disturbances are found with Graves's disease, myxœdema, Addison's disease (ductless gland diseases). In the hypothyroidism of myxœdema Magnus Levy shows experimentally definite deviation from normal metabolism, removed by administration of thyroid. As the symptoms (including the mental ones) disappear or are greatly mitigated by such means, there is reason for the view that metabolic disorder accounts for the mental disturbances in this disease, and if in this, then also, it may be, in other ductless gland diseases. When, however, it comes to administering thyroid or pituitary gland in kinds of insanity in which there is no ground for supposing the action of these glands to be deficient, in order, as the jargon goes, "to promote metabolism," we are empirics indeed; yet, like empirics, we sometimes do good in this way. Is there any record of the metabolism in these cases before, during, and after treatment?

Some sporadic work in metabolism in the insanities has been done: thus, in dementia præcox (Pighini); in epilepsy and general paralysis (Kauffmann)—work in need of confirmation. For systematic work we have, I believe, still to refer to Folin (Maclean Hospital, Massachusetts), whose observations were concerned with the urine, and amount to this: that unusual fluctuation in the urinary constituents occurs in general paralysis, which strongly suggests that this may be at one stage or another associated with disordered metabolism; as regards other mental disorders, individual peculiarities indicating abnormal metabolism are frequent, but no characteristic metabolism corresponding with a particular disorder has as yet been found. I may further mention researches upon the excretion of creatinine in the insane conducted by Mr. MacKenzie Wallis and myself, and subsequently by the former at Cardiff Mental Hospital. These, and especially the last-mentioned research of Mr. Wallis, show that the excretion of creatinine, which in normal persons is practically constant for the individual from day to day, and independent of diet, varies from day to day in several kinds of insanity and is subnormal (as is also the coefficient, creatinine-bodyweight). This variation has so far been found only in mental cases. These researches point to altered muscle-cell metabolism in the insane, and indicate by a special instance the need for further inquiry into questions of metabolism in mental disorders—the need, in other words, of the physiologist and the chemist in mental hospitals.

THE SURGICAL TREATMENT OF SOME FORMS OF EPILEPSY.

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Introductory Remarks.

IT is now fairly well agreed upon that the seat of idiopathic epilepsy is in the grey matter that covers the convolutions of the cerebrum and that the "fault" lies in some way in the cortical brain cells of this region. Many generations of observers have closely scrutinised the cortex of the brain, yet in spite of the much greater delicacy of our instruments and of improved technique, we seem to be as far as ever from the discovery of any definite change in the nerve cells likely to be associated in causal relations with epilepsy. As the results of experiment and of disease alike point to this region and to the cortical cells, we can only conjecture what the changes in the nerve cells may be.

Hughlings Jackson assumes an unstable condition of the

nerve cells through which a liberation of nerve force takes place either spontaneously or under the influence of causes that are insufficient to liberate the nerve force of healthy cells, and hence the discharges of the cortical cells in epilepsy are irregular, premature, and objectless, the very opposite qualities to those which characterise healthy discharges of nerve force. Hughlings Jackson, also in illustration of his theory, speculates that the unstable grey matter of disease is of the same constitution as the comparatively stable grey matter of health, but of a different composition; and a further speculation is that the phosphorus ingredient is replaced by its congener nitrogen, and that the nervous matter is more nitrogenised and therefore more explosive.

Broadbent thought it must be assumed in ordinary epilepsy that the nutrition of the grey substance is modified so as either to give rise to excessive production of a normal explosive matter, or to the formation of a more deteriorated and more unstable variety. The grey matter forming the cerebral cortex is intellectual, receiving centripetal impulses, dealing with them and transmitting the information so received into efferent impulses. In epilepsy it is also supposed that cortical nerve cells may spontaneously produce motor discharges without sensory influence, or may produce irregular discharges at the stimulation of sensory afferent influences of a slight character, such as intestinal influences, mental worries, memories, &c.

Gowers thinks epilepsy to be due to an abnormal state of chemical nutrition whereby the molecules are more easily detached and their atoms yield with undue facility to the attractions of the adjacent oxygen. Haig assumes an alkaline tide during the night and early morning, when uric acid is supposed to circulate freely in the blood and to produce migraine, mental disease, and epilepsy.

A. E Russell suggests that failure of the cerebral circulation has something to do with the production of epilepsy. Peripheral irritation, such as dentition, injuries of nerves, intestinal irritation produced by unsuitable or excessive diet, worms, constipation, menstruation, are dwelt upon as sufficient causes by other observers. These peripheral irritations, as far as we know, are not greater than similar irritations that occur in normal non-epileptic individuals, and hence an unstable nervous system has to be assumed; and such a theory when followed up resolves itself really into that of the Jacksonian unstable cortical cell theory. These are all theories that explain the phenomena to a certain extent, but do not lead to any practical issue, or when put to the proof do not help towards the relief of the patient.

What is the cause of the instability of the cortical cells is the next question that naturally arises. Is it hereditary or is it acquired? If it is hereditary, in Dr. John Turner's sense "of an inherently defective nervous system from an hereditary vicious organisation," then the outlook is hopeless for the individual epileptic, and our only remedy is eugenics and the limitation of the class. But no one, even the most extreme advocate of heredity, can find distinct evidence of ancestral disease in more than 40 to 50 per cent. of epileptics, and we continually meet with cases where traumatism plays an undeniably prominent part in the production of the disease, and where no heredity has existed within the remotest periods of time available for inquiry. Heredity probably means no more in epilepsy than it does in tubercular phthisis—viz., a deficiency of resistance to the particular agency by which the disease is produced. Should the agent be absent the individual does not become an epileptic, but the presence of the agent connotes epilepsy. In perfectly normal individuals, as far as anyone can say, a sufficiently powerful agent may produce the disease. Most epileptologists and surgeons have met cases where healthy well-balanced men or boys have become subject to epilepsy through traumatism, and the nervousness that often characterises the traumatic epileptic is the result of the disease instead of a predisposing cause. A change has taken place in the brain cells in such cases so slight and so obscure as to elude detection by our most expert methods of examination, and the subtle change may persist during a lifetime or may disappear after a few epileptic manifestations. The question arises in my mind whether we are not aiming too high in trying to find out the minute change or changes in the cortical cell that induce epilepsy. Such a change may be largely psychical and its detection may for ever be beyond our powers, just as the question, What is life? is still unanswerable. We know what life does and we know something about circumstances that will influence or destroy life, and a study of such causes is well worth while, although a comprehension of the mystery of life will probably never be attainable by mortal man. So it is with electricity; so it may be with epilepsy. In this way it seems to me that observations of the phenomena of epilepsy in the post-mortem room and in the operating theatre have suffered. Obvious naked-eye lesions have been ignored or passed over in a sentence as of no moment, and nerve cells have been stained, magnified, and scanned for changes. If any minute changes could be found constant in epilepsy, and peculiar to that disease, it would probably not advance either the welfare of the sufferers or our knowledge of the causes and nature of the disease in the smallest degree.

Importance and Prevalence of Œdema of Pia-arachnoid in Epilepsy.

About ten years ago, while exploring the brain in cases of focal epilepsy where no gross lesion was found, I was struck by the constant presence of œdema beneath or in the pia-arachnoid. This œdema was flocculent and hazy in appearance, sometimes completely concealing the contour of the cerebral convolutions, at other times only rendering it dim. On pricking the arachnoid the fluid ran out clear and pellucid or sometimes spurted out as if under tension. On collection and examination it answered all the tests of cerebro-spinal fluid. I began to look for it in necropsies on epileptics, but did not find it there so frequently or so distinctly, although in some cases of status epilepticus it was very manifest, as in the following case. The patient, a woman aged 45, who had been an epileptic for 20 years, suffering from both *grand mal* and *petit mal*, and died in "status" of 48 hours' duration, showed a marked layer of œdema over the motor area on both sides of the encephalon. There was very little over the frontal lobes. The occipital lobes and the base were quite free from fluid. Knowing now where to look for it I can see traces of it generally in all post-mortem examinations. It is, however, on the operating table that it obtrudes itself upon our notice, and I now look for it in all my operations in epilepsy and find it as a matter of course. I have demonstrated it for the past ten years to many students, house surgeons, and medical visitors, so that there is no doubt of its existence. The condition found in each case has been described sometimes by myself, sometimes by my house surgeon or dresser in the clinical notes, some extracts from which in regard to the presence of fluid may here be given.

Extracts taken Verbatim from Notes of 20 Successive Cases of Epilepsy where the Brain was Exposed by Trephining and which show the Presence of Œdema of the Pia-arachnoid in every Case.

1. F. S., aged 10, an epileptic since one year old; attacks daily, one or more; aura, twitching in right hand; operation; no gross lesion found, but a dense layer of grey flocculent fluid covered the left motor area and concealed the convolutions. A thin membrane covered the fluid. The membrane was readily removed by traction with the forceps, and the fluid ran away in a considerable quantity, after which the convolutions could be distinctly seen.
2. J. W., aged 7, a congenital epileptic with daily attacks; right aura. The motor area of the left hemisphere was found to be very œdematous and bulged through the fenestration made in the dura mater. In subsequent cases the notes regarding the œdema only will be given.
3. "There was considerable œdema on each side of the vessels, especially posteriorly."
4. "Some fluid escaped."
5. "Brain looked pale and œdematous as seen through the fluid which escaped and was caught for examination."
6. "When dura opened, meninges found in the usual œdematous condition."
7. "Large amount of clear fluid found and came away."
8. "The dura was incised and the fluid ran out in considerable quantity."
9. "When the tense dura mater was opened a large quantity of clear fluid was evacuated, leaving brain quite clear."
10. "The brain below looked congested and œdematous."
11. "Membranes very œdematous; a large quantity of clear fluid came away."
12. "There was a large quantity of fluid along the vessels, slightly turbid and coming away freely."
13. "Usual œdema found on surface of brain."
14. "Trephined on left side. œdema on surface of convolutions."
15. "Dura mater fenestrated; contained much fluid beneath membranes."
16. "Usual œdema found on surface of brain."
17. "There was a great deal of fluid along the vessels, slightly turbid oozing away freely when the membrane was opened."
18. "Arachnoid contained clear fluid and was rather œdematous."
19. "Brain surface very œdematous."
20. "Surface of brain œdematous and somewhat hæmorrhagic."

Extracts Corroborating the Prevalence of Œdema of the Pia-Arachnoid in Epilepsy by Other Observers.

It would seem strange if this phenomenon of œdema had not been noticed before, and a perusal of the medical journals for some years shows that it has been observed again and again. Dr. John Turner writes about "the abundant foam-like exudate as a feature constantly present in epilepsy." It is found, he says, in small quantities in other diseases, notably general paralysis of the insane, a disease occasionally, if not frequently, accompanied by epileptic seizures. Dr. Bendandi, Bologna, opened the skull of a traumatic epileptic; a tablespoonful of colourless fluid was found on the surface of the brain (localised œdema). Dr. Lees and Mr. Page describe the milky arachnoid in a case of epilepsy and a large excess of subarachnoid fluid.

Dr. H. Muir Evans of Lowestoft, in describing a case of trephining for focal epilepsy, says, "When dura mater incised crucially a large amount of cerebro-spinal fluid escaped, and the arachnoid looked as if a mucous polypus was flattened on the surface of the brain." Dr. A. E. Morison, in operating upon a traumatic epileptic, says, "Arachnoid bulged and was excised, when 2 ounces of straw-coloured fluid pent up in a localised space escaped." In a second case blood was effused beneath the arachnoid. Sir Henry Butlin trephined in a case of traumatic epilepsy and found a small clot of blood in the subarachnoid space, and beneath there were two to three drachms of fluid. Dr. F. T. Heuston of Dublin refers to the increase of cerebral fluid in a case in which he trephined and where there were traumatic epilepsy, aphasia, and paralysis. Sir Thomas Oliver trephined on the right side. Several teaspoonfuls of serum with flakes of lymph escaped, the dressings being soaked at the first dressing.

Dr. Spratling, in his work on epilepsy (p. 315), says the pia mater presents frequent changes in epilepsy, but none which are constant and characteristic. Of these the most frequent is a certain amount of œdema and congestion of the pia, the latter being a sequence of the vascular engorgement incident to the fit; a certain amount of œdema is quite common, and is especially pronounced in old epileptics and insane epileptics, and is often associated with more or less brain wasting and incidental increase in the cerebro-spinal fluid. In his directions for operations Dr. Spratling says that at times the pia may be so œdematous as to obscure the outlines of the convolutions. In such cases it will be necessary to "incise the pia to allow of the escape of the fluids."

Extent and Character of the Fluid Found.

The evidence of the frequent if not constant presence of this fluid over the motor area in epilepsy is therefore very strong. The extent of the area involved is not so certain. My operations have always been directed to the focus indicated by the unilateral spasms, which I made the centre of a large opening over all the suspected motor area, and there the œdema was always present. What was the condition of the other parts of the brain in these cases I cannot say, as it is only in necropsies that the whole brain is uncovered, and in necropsies the fluid is not so much in evidence, but in the case of status already described it was found over the motor areas of both sides of the brain and scarcely at all anywhere else. The convulsions were general in this case. The fluid is clear, sterile, milky, or frothy in appearance, and contains small particles of lymph that cause the fluid to appear like thin barley-water. The brain has a glossy look as seen through the fluid, and when the layer of fluid is deep the convolutions beneath are concealed. The fluid runs away quite clear, the small particles of lymph remaining *in situ*. Sometimes large quantities of fluid drain away after operation. Bacteriological examinations fail to show any organisms, and chemically the fluid is pure cerebro-spinal fluid. The membranes of the brain are not generally thickened or altered from their normal appearance.

Circumstances and Experiences Connecting this Œdema with Epilepsy as a Probable Cause.

What connexion has this pia-arachnoid œdema with epilepsy? Probably the great majority of observers would have said none, and most likely many other observers have noticed it, but not thinking it of any importance have not reported it, or have come to the conclusion, like Dr. Spratling, that it is a result of the fits. When it caught my attention about ten years ago during an exploration for so-called focal epilepsy there were several circumstances that forced me to consider it very closely. Amongst these was, first and foremost, that eclampsia, a disease characterised by œdema all over the body, has epileptiform convulsions as one of its main characteristics. Secondly, the frequency with which scarlet fever is followed by epilepsy, a disease in which dropsy is not uncommon. Thirdly, the sudden and mysterious onset of œdema of the lungs in epilepsy, as proved by both clinical and pathological evidence. This œdema of the lungs is also found in eclampsia, and is no doubt a part of the circulatory changes that produce the cerebral œdema. Fourthly, the great benefit in many cases of trephining, especially those cases where a considerable area of the calvarium had been removed and where possibly an equilibration of tension was the secret of the relief obtained. I say advisedly *equilibration of tension* because I have strong reason to believe that a decrease of tension rather than an increase may be the cause of the œdema.

Experimental and Clinical Evidence to Show that Œdema may Cause Convulsions.

We have not much reliable experimental evidence to bring forward, but we find that Flourens wounded the dura mater in young pigeons and showed that the convulsions were produced by the extravasation of blood and were relieved by opening the cranium. Leyden drove albuminous fluid into the cranial cavity of a lightly morphiamosed dog when cries, convulsions, and irregular respiration occurred.

I will briefly relate several experiments that Nature may be said to have performed for me lately and which strongly corroborate and support my ideas—formed upon the results of operations and post-mortem examinations—as to the causative functions of œdema in connexion with epilepsy.

CASE 1.—A man, aged 35. Admitted to hospital May 17th, 1910. The previous day he had been driving a cart which came into collision with a tramcar. He was thrown out of his cart, and sustained bruises on both sides of his head. The patient was at first dazed and unable to speak. He had been more or less of an invalid for years, suffering from epistaxis and occasionally hæmoptysis, phthisis, and had a severe cough on admission. For the three days after admission he gradually became more unconscious until the 20th, when he was noticed to have attacks of twitching on the right side of the face and limbs. The first attack occurred at 1.30 P.M. and lasted three seconds. The next occurred 20 minutes later, and from that until the operation the attacks occurred every 20 to 30 minutes till 6 P.M., when they became more severe and more frequent. I diagnosed a collection of fluid over the left motor area, and on May 17th removed a rhomboidal piece of bone (3 × 2 in.) that exposed the dura mater over the central zone of the whole motor area. On fenestrating the dura mater a large quantity of blood-stained fluid was found both beneath and above the arachnoid, and the convolutions beneath were deeply stained red. The fluid was allowed to flow away. The bone was not replaced, and the skin flap was laid down over the fenestrated dura mater, a thin curved glass drainage-tube being inserted at the back of the wound and passed between flap and dura. The wound was then stitched up, not a single ligature being required. A large dressing of sterilised gauze and wool was applied and kept in place by a capeline bandage. Immediately after operation, and during the night, patient had nine fits. There were no fits on the 21st nor during the remainder of his convalescence. The dressings became saturated with fluid, and were covered with fresh layers of gauze and wool. The patient was rather restless in the evening. The temperature went up to 103° F. Some morphia was given. May 22nd: Temperature 100° in morning, wound dressed, drainage-tube removed, dressings saturated, no more twitchings, but restless and tried to pull dressings off. 23rd: He began to speak, and said "Yes." From this time till his discharge his speech gradually came back. The wound healed by the first intention, and he was finally discharged on August 1st, 1910. The state of his chest detained him in hospital long after he was well of the head injury, and gave us ample time to watch the return of his speech and the complete and rapid disappearance of his attacks. The only thing we had done was to drain away the fluid that we found over the motor area and to leave openings by which fresh fluid could drain into the surrounding tissues.

CASE 2.—A man, aged 50, was admitted to hospital on Oct. 1st, 1910, and reported to me as having had an injury on the left side of the head. When admitted he had aphasia and gradually increasing unconsciousness; epileptiform attacks were frequent. Mouth twitched to right side and right arm stiff and rigid. Late in the evening of the day of admission he was trephined over the left motor area. The skin over the left parietal eminence was much bruised, but the bone beneath was not injured. On removing a rhomboidal area as in the last case and fenestrating the dura mater we found a considerable flocculent œdema, not blood-stained, that entirely concealed the brain beneath. It looked like the condition of an epileptic. The pia-arachnoid was punctured, the fluid evacuated, the flap closed as before, and a similar drainage-tube was also inserted. Next morning the patient was quite conscious, the aphasia had disappeared, and the temperature was normal. I was puzzled by this case, especially in regard to the fluid being flocculent and not blood-stained, until I found that the patient was an old epileptic, and that probably the blow that he had received had increased the amount of fluid that already was in excess, and hence the acute and grave symptoms that he presented after admission. The case illustrates the rapid beneficial effect of removing the fluid and the cessation of the localised twitchings that were almost continuous just before the operation.

CASE 3.—My next case is one of *puerperal eclampsia*. The patient, aged 35, was confined ten days before her admission on Sept. 11th, 1910. Ever since her confinement she had incessant headaches, and the day before admission she had ten severe fits, as a result of which she was completely unconscious and cyanosed. In spite of remedies she remained in a hopeless condition. On the 12th, as the fits were distinctly right-sided and, as a last resource, I trephined over the left motor area and found such an amount of œdema and turgescence of the veins as I had never witnessed before. The pia-arachnoid was punctured, much fluid came away, and the wound was drained and closed in the usual way. A few hours after she seemed to be rather more conscious, but her pulse was extremely feeble, and her condition still very hopeless. She died 12 hours after operation from coma and exhaustion. The temperature had risen to 104·4° F., *but no fits and no twitchings had taken place after the operation*. A necropsy showed the operation wound and brain quite aseptic; minute, sometimes confluent, hæmorrhages had taken place into the convolutions of both the right and left sides of the brain over the motor areas, on the left side more especially.

These three cases are given to show the effect of simple removal of the fluid. In each case nothing was done but remove the fluid, and in them all the twitchings stopped almost at once and did not return. The other symptoms also disappeared in the first two cases, but in the eclamptic the hæmorrhage into the substance of the brain was too extensive to permit of recovery. I only mention the last case to show that even there the twitchings were probably the result of the fluid rather than of the hæmorrhage into the brain.

Efforts to Relieve the Disease Founded upon the Foregoing Considerations.

We have endeavoured to relieve our patients by the removal of the œdema, and in order to do this we have, in the first place, to diagnose the seat of the œdema by means of the aura in cases where it occurs. Where it is a distinct and fairly constant phenomenon we cut down upon that area of the brain, fenestrate the dura mater, and so open the pia arachnoid. The bone is not replaced, but the skin flap lies over the fenestrated dura, and thus a free communication is made between the general peripheral circulation and the cerebral cortical circulation. A safety-valve action is thus afforded the enclosed cerebral circulation and tension is equilibrated and the œdema can drain away as soon as it is formed.

There are many theories to explain the benefits of the operations, but I do not intend to dwell upon them here, knowing how fragile most theories are to lean upon. What we depend on are the facts, showing what benefits epileptics have derived from such operations and what disadvantages, if any, have resulted from the same.

The operation, which is named "*fenestration of the dura mater*," consists of a definite procedure not to be confounded with any other procedure that we have ever heard of. It is not merely trephining, although we have to trephine to reach the cerebral cortex, and some writers and surgeons have confounded fenestration with trephining, and talked as if we were performing an old operation that no longer interests the medical world. In a few cases trephining and removal of large areas of skull have been followed by much success, and we have published one or two good examples that are scattered through different journals, but they are unique cases, and that operation cannot be considered as a successful routine treatment for epilepsy. Then we have trephining, removal of part of the calvarium, opening of dura and exploring for tumour, diseased convolutions, spicules of bone, removal of such lesions when found, and replacement of dura and bone and complete closure of the wounds, &c.

In "fenestration of the dura mater" we do not operate with such intentions. We do not *expect* to find any such lesions, but should any exist we treat them, but only very exceptionally do we find any. We operate to find œdema of the pia-arachnoid, and we presume a condition of malnutrition of the grey matter of the cortex produced by the œdema sufficient to keep up the epileptic phenomena, and by draining this area we hope to improve the nutrition of the deranged cortical cells and diminish the number of attacks, improving the prospects of the cure of the patient. This is what we mean by fenestration of the dura mater, and to apply the general term of trephining to such an operation is misleading.

The operation was "led up to" by the ordinary trephining or exploratory operations. In these my custom was to stitch up the dura in deference to the general practice, but I found at times and for various reasons that it was impossible to stitch up the dura completely and fenestrations were accidentally left and that these not only did not interfere with the surgical success of the case, but even sometimes coincided with a greater therapeutic success than in the cases I was able to stitch up to my satisfaction. Hence, when the idea came to me of making the fenestrations the important part of the operation, I was not taking a leap in the dark, but was quite assured by previous operative experience not only of the safety of the procedure but of its probable beneficial effects. The following is a description of the operation performed by me for several years.

Description of Operation of "Fenestration."

The scalp is shaved two days before operation, thoroughly washed and scrubbed with ethereal soap and ether, and a lotion of hydrarg. perchloride 1 in 1000 is applied for 24 hours. Then a similar process is carried out, the perchloride being applied for another 24 hours. On the operation table the head is surrounded with aseptic towels and all essential aseptic precautions are taken to render the operation a success. A large flap of the hairy scalp containing all structures down to the bone is thrown over the ear, which is protected by a sterilised towel. This exposes the skull from the frontal to the occipital bone and from below the middle line to the temporal muscle. The bleeding from both sides of the incision is quickly stopped by the application of Thornton's transverse bladed forceps. The skull is now cleared of periosteum above the parietal eminence and two trephine holes made, one in the front part and one in the back part of the parietal bone and about midway between the level of the parietal eminence and the median line. A Hey's saw joins these trephine holes. The bone half sawn through is cut out by bone forceps; it makes a rectangular opening 4 by 3 in. The size will vary according to the size of the skull, but I always err on the side of excess rather than of deficiency of room. The safety of the patient is manifestly promoted by leaving the parietal eminence intact. Before cutting with bone forceps it is always well to see that the dura mater is not adherent to the bone at any part. When the bone is removed the dura mater crossed by its branching vessels comes into view. It is opened very carefully by a small aperture so as not to puncture any delicate vessels beneath. A director may then be passed in and the dura slit up from side to side in three or four places as far as the dural vessels will permit. The state of the pia-arachnoid and of the brain beneath may then be conveniently inspected over the whole area, 4 by 3 in. The pia-arachnoid may be opened in various places and the fluid allowed to run away. A stream of normal saline refreshens and washes the wound, and the flap similarly freshened is laid back in position with the forceps still attached. The surgeon, beginning at the anterior end of the wound, stitches it up with a continuous suture of silkworm gut, the assistant removing the forceps as he advances until the whole wound is quite stitched up. The cicatrix lies over the solid bone, and the pressure of the suture and afterwards of the dressings produces complete hæmostasis, so that not a single ligature has to be used throughout the operation unless the surgeon is so unfortunate as to wound a pia-arachnoid vessel in opening the dura mater, when a fine ligature may be necessary and is difficult to apply owing to the frailty of these vessels. A fine curved Kocher's drainage-tube, with small elevations at the outer end to prevent it passing beneath the flap and out of sight, is now inserted at the posterior end of the wound and passed between the dura mater and the flap. Sterile gauze and sterile wool dressings are now applied in profusion and held firmly in position by a well-applied capeline bandage. Great care is necessary in nursing to see that the patient does not interfere with the dressings and that fresh wool is applied at once where discharges show. In 48 hours the dressings are taken down, the glass tube removed, and the dressings re-applied and allowed to remain until the fourteenth day after operation, when the sutures are removed and lighter dressings applied for another week. Afterwards a soft cap is all that is necessary, stiffened by a thin piece of poroplastic material a little larger than the size of the opening. It is only necessary that this stiffening should be fastened inside the lining of the cap and over the weakened part of the calvarium. It is quite as effectual in warding off blows as a silver plate fixed over the trephine opening. It should be worn for some months, especially during play, or when circumstances render its use advisable.

Results of Operation.

I will now give the results of operation up to date in 20 cases that we have been able to follow up. There are many other cases which have been lost sight of through change of residence, the final results of which we do not know. The mortality is now practically *nil*, but at first we lost three cases through sepsis. This can be avoided, not only by strict asepsis, but by seeing that the scalp is quite healthy, and by having the patients well watched that they do not interfere with the bandages as occurred in two of our cases.

CASE 1.—A boy, a congenital epileptic, aged 11 years, was admitted to the Birkenhead Workhouse Hospital on August 27th, 1902. He had six severe attacks of *grand mal* during the remainder of that year, and eight during the first five months of 1903. These were all diurnal attacks. He was apparently a hopeless imbecile epileptic, unable to talk better than a year old baby; was dull, stupid, and as incapable as an infant of attending to the wants of Nature. The mother had heard of good results in one of my simple trephine cases and brought the child to me for operation. There was evidence that the right arm was first affected by the fit, and in accordance with my ideas on the question of fluid I for the first time, June 4th, 1903, at the Royal Southern Hospital, Liverpool, performed the operation of fenestration of the dura as a complete and predetermined operation. A considerable quantity of clear fluid came away from the pia-arachnoid. The wound healed up by first intention, so that we need not dwell upon details, and the technique of the operation has been already described. On June 7th, 1903, patient had a slight attack. On June 29th he was sent back to the workhouse. Dr. Stansfield, who was present at the operation, and is the medical officer to the Birkenhead Workhouse, informed me that he had one slight fit a week after his return and none since.

In April, 1908, he was admitted to the Epileptic School at Maghull in a much more intelligent state, but still unable to talk, although his vocabulary was somewhat greater. It was hoped that contact with other children would stimulate him to vocal effort. We were here met by a difficulty. The incontinence still continued in much the same state as in hospital, and threatened to bring his school career to an abrupt close. Having overcome the fits we were determined not to be beaten by a secondary difficulty. Fortunately in the adult portion of our colony we had a very steady sensible patient, who told me he had considerable experience in training young animals and loved the work. To him we now deputed the higher task of training in habits of cleanliness an imbecile boy. He undertook the task *con amore*, and in less than three months the boy was able to attend to himself and to keep himself and his bed quite clean. Since the operation the patient has not had a single dose of bromide or any medicine except an occasional dose of aperient medicine. He can talk and play with his companions. He understands what they are saying, and speaks a childish language which they can understand. He can do simple work to which he is put, and there he will stay, doing fairly well till he is taken from it and put to something else, but he cannot do any work that requires thought or change of action. He is obedient, sensitive, and affectionate, and he has now been handed over to the guardians as a cured epileptic. This has been done because he had reached such an age that we could no longer keep him at the school. After eight years we may use the word *cure* in regard to this case.

CASE 2.—The patient was an imbecile boy, aged 13, unable to read, quite intractable, and also subject to frequent epileptic attacks. These were congenital, came on without warning, and probably began on the right side; severe attacks of *grand mal* occurred every few days. The success of the previous case encouraged us in undertaking this one, especially as the parents were very anxious for something to be done. Accordingly, on March 17th, 1904, the operation of fenestration was performed on the left side. The note by the house surgeon is to this effect: "Free incision made through dura mater, meninges in usual œdematous condition, gauze drain inserted. Patient very noisy and restless after, trying to tear bandage off." Up to his discharge on April 11th, 1904, the patient had four fits. Much more frequent before operation. At the end of April, 1907, I followed up the case, and learned from the mother that he went on well after his discharge, had no fits for 12 months, could run errands, attend to directions, and listen to instruction. She was delighted with the gradual improvement, and her hopes were very sanguine in regard to his becoming a useful member of society. At the end of the year, however, his legs began to swell, the eyelids and hands became puffy, and he died from acute Bright's disease on August 5th, 1906. After the dropsy began his fits returned, and continued more or less till he died.

CASE 3.—A boy, aged 3½ years, an imbecile epileptic, was brought to me at the Royal Southern Hospital at the beginning of November, 1905, as a case that might be benefited by operative measures. The boy was reported to be normal till he was 18 months old, and three months after the history of a fall. About that fall we could not obtain any definite information. There was no depression of the skull, and no marks were to be seen. At first he showed "twitching movements" or "partial convulsions." These attacks were easily excited by noises. He had become irritable, cross, and incontinent. The twitchings began in the right hand, and spread rapidly all over the body. When two years old he had scarlet fever, and since that time the attacks became much worse. He had frequent attacks daily. No history of heredity or parental alcoholism. Labour was prolonged, but not instrumental, no natal asphyxia or other cause of imbecility; a very unpromising case, but considering the improvement in Case 4 it was determined to give the boy the chances of the operation although he was a drivelling idiot, unclean and apparently hopeless.

Accordingly in the beginning of December, 1905, the operation was performed successfully, and the patient was discharged from hospital a month after with the wounds healed and the patient as sound in health as before. We were to hear from the mother at intervals as to how he was doing, but we received no information from her for a long time. When at last we unearthed the case we found the mother had been unable to look after the boy; she had handed him over to the guardians, and finally he had been removed to Winwick Asylum, where he was admitted in April, 1907. The medical superintendent, Dr. A. Simpson, kindly kept me informed at intervals of the course of the case, and I obtained the following statistics of his attacks when I visited the asylum in 1910: 11 fits in 1907, none in 1908, three in 1910. In a letter, dated April 5th, 1910, Dr. Simpson says, "In reply to your letter of the 4th instant, I beg to inform you that the boy's mental condition is not improving, he becomes more troublesome as he gets older. He has had no fits for three months."

I mention the case to show the improvement in the number of attacks from several thousand annually before operation to 14 fits in three years afterwards. We do not know how many attacks he had under the mother's care after operation.

CASE 4.—A boy, aged 13, was admitted to Royal Southern Hospital from the out patient department on April 23rd, 1906. The boy is said to have fallen on his head in 1903, and to have injured the left side of his head. Some time after this the attacks commenced, and to this fall the disease was ascribed. There was no definite account of the injury, even the time of its occurrence was uncertain, and nothing abnormal was to be seen about the skull or scalp. The attacks were severe and increasing in number, one *grand mal* every week, many attacks at night, mental dulness increasing, and mental faculties becoming perceptibly impaired. On August 1st, 1906, I trephined over the left side of the skull where the injury was supposed to have been, but found the skull entire and normal. The dura was opened, but the quantity of œdema was unusually small. All the steps of fenestration were gone through, and the wound healed *secundum artem*. The effect upon the fits was *nil*, although the mother thought he was brighter.

On June 29th, 1909, she brought him back to me with a report that the night attacks were increasing in number and severity. The day attacks varied, and he had occasional giddy attacks without complete loss of consciousness. "Boy very dull and lethargic, and shows little intelligence." I determined to trephine the right side, although there were no focal symptoms to guide me, but I knew from the previous exploration that the left side of the brain was not the affected side. On July 1st, 1909, I trephined and found the brain œdematous, and at parts the œdema was hæmorrhagic in tint as if there had been an ancient cortical hæmorrhage there at one time. On March 15th, 1910, this patient was admitted to the Epileptic Colony at Maghull. He has become very sensible and intelligent, works very well, and his attacks have become less by one half.

CASE 5.—A boy, aged 11, congenital epileptic, somewhat weak-minded, mental condition that of a child 6 years of age. Having 30 to 40 attacks every six weeks, these coming in batches and producing such prostration and exhaustion as to threaten his life every time. The attacks are all of the *grand mal* type. There is a constant spasmodic tic of right eyelids, especially the right lower lid. During the time the series of attacks are taking place he complains of pains in both legs and over the left acromion process. Both sides of his skull were trephined and fenestrated on Feb. 12th and June 6th, 1907. At the first dressing on June 8th, when the usual small glass drainage-tube was being removed, a large amount of clear fluid had soaked the dressings. Patient looks more intelligent, and says the pain has gone from his legs. He was seen on Sept. 9th, 1907, still free from attacks, healthy, and intelligent. He is being kept under observation. The mother came to me on Jan. 4th, 1911, in great grief. She said the boy had been much better since the operation, but towards the end of the year 1910 he had an attack in which he died. She had been trying to get him into the school at Maghull, but could not succeed. I was very sorry, as a promising case was cut short during an attack, probably through cardiac failure or want of skilled attention during the convulsions.

CASE 6.—A girl, aged 10 years, was sent to me by Dr. Williams, Rock Ferry, as a patient suitable for my fenestration operation, of which he had heard good accounts. She was the subject of attacks of *petit mal*, some of them very slight, but others more severe, entailing frequent falls and injuries. She was simple, could talk about nothing but her fits, and although she looked sharp the appearance was delusive, her mental faculties were much impaired, and judging from the report of the mother the deterioration was evidently progressing. There was no definite aura, but there was a tradition of right-sided twitchings. On Sept. 27th, 1906, I fenestrated the right side, and found the pia-arachnoid "highly œdematous." The wounds healed by first intention, but the attacks were not much influenced, continuing ten daily as before. In consequence I was induced also to operate on the right side, and there I did not find any trace of œdema but considerable tension of the brain, which bulged into the fenestration opening. The wound healed up quite satisfactorily, but during convalescence she had a sharp attack of pneumonia of the base of the left lung which caused some anxiety. It all passed over safely, and she was discharged on Jan. 9th, 1907. I saw her occasionally afterwards. On Oct. 29th, 1910, I received a communication from Dr. Williams asking me to see another case for him, reminding me of this case, which he said I had operated on so successfully, "only 68 fits since last operation, and none since January last, except slight faintings, and these only lasting 'a few seconds.'" He concludes: "I think it is a result you ought to be proud of."

CASE 7.—The patient, aged 10 years, was a school girl who became epileptic at 2½ years of age. The disease gradually increased until she had as many as 16 to 17 fits per diem. Under bromides she had a short respite, but when 5½ years of age her attacks became more severe and more frequent—one every three hours. Left side is chiefly affected. She cries at commencement of an attack, works her arms, especially the left; puts arms over her head. Is feeble-minded and quite uneducated, never having been to school. She was admitted to the Royal Southern Hospital on Feb. 21st, 1910, and was operated upon on Feb. 24th. Usual œdema found and usual operative technique carried out on the right side of the head. On the 26th she had had 15 attacks since operation, but not so severe. The attacks gradually became less, and on April 1st, when discharged, the daily attacks were reduced to none, and during the previous week to two per diem. She is now at the Epileptic School at Maghull, and has only had one attack on an average per week. She is getting on very well at school, is intellectually much brighter, physically better nourished and more energetic, and is a very promising case, in marked contrast to the state of imbecility and irresponsibility which characterised her before operation. Her teacher says: She is rather slow in acquiring knowledge, but when she has grasped it, she holds it firm. Her chances of becoming an intelligent member of society are very good."

CASE 8.—A boy, aged 7 years, admitted to the Royal Southern Hospital on Oct. 7th, 1907, for the purpose of fenestration of the dura. He had been an inmate of the epileptic home at Maghull, since Oct. 13th, 1906, and during the rest of that year, 1906, he had 42 fits.

During 1907 he had 681 attacks, so that his average number was about two daily. He was taking 5 gr. borax and 5 gr. bromide of sodium all the time. The nurse reports: "In going into an attack he begins to stare, the eyes roll backwards, the right side of the face and especially the right angle of the mouth twitch. If he is in a sitting position he does not fall. The whole attack only lasts a few seconds, and he soon recovers his natural condition when the fit is over. His behaviour is silly, his speech is backward and indistinct, and his papers describe him as partially imbecile. He talks all the time and does not listen to what is said to him, except that he pays more attention to his nurse, of whom he is very fond. When an attack is coming on he calls out that he is going to be ill, and falls down if not already seated." The operation was performed on Oct. 10th, 1907. Six large fenestrations were made in the dura mater. The surface of the brain was found to be very œdematous, and bulged through the fenestrations. Wound healed up as usual by first intention. He was discharged on Nov. 30th, having had 81 fits since the operation. During the first part of 1908 he had no medicine whatever, and the number of attacks came down very slowly. He was then placed on the same medicine as before the operation, under which treatment his attacks numbered 681 a year as above recorded. The improvement was now more rapid, and during 1910 he had 38 severe attacks and 18 slight, in all 56, or one per week, a marked contrast to two per day. The boy has developed well physically and intellectually, and has improved in appearance out of all knowledge. The benefit from the operation is so great as to be a surprise to all who have observed the case.

CASE 9.—A boy, aged 7, was admitted to the Royal Southern Hospital on June 2nd, 1908. Twelve months previously he began to have fits, cause unknown. The mother stated that the fits always began with twitchings of left arm. There was no cry and the child had only fallen twice. Loss of consciousness was very short, and the whole attack lasted about half a minute. Child was drowsy for some time afterwards. The attacks occurred irregularly, sometimes four times a day, at other times only once a week. His mental condition was still fairly intelligent, but mind failing, articulation normal. Examination of fundus oculi (Dr. Hamilton): "Veins full and dark (particularly inferior nasal vein); edges of disc woolly." On June 15th fenestration was performed on the right side of the skull, fluid present as usual; wounds healed by first intention. Had one fit on July 11th, none afterwards before his discharge on July 20th, 1910. On July 6th the fundus oculi were again examined by Dr. Hamilton and no change was reported. During 1909 and 1910 the boy has been at the Epileptic School at Maghull, and his attacks have fallen to one per week during these two years, a distinct improvement from what it was before operation, when he had sometimes four attacks per day. He is intelligent and good at his lessons.

CASE 10.—The patient, a boy, aged 15, was admitted to the Royal Southern Hospital on Feb. 16th, 1909, suffering from epilepsy. His attacks had been coming on every fortnight for the past eight years. The attacks were severe, *grand mal*. He knew when the attack was coming on by a feeling in the right hand, and the attack was ushered in by twitchings of the right side of the face and in the right arm. The alleged cause of the disease was scarlet fever, which he had a short time before the attacks began. Patient was fairly intelligent, imperfectly educated, said to be mischievous, mild in temper, and very repentant and submissive when found out in any mischief, and probably tried to be law-abiding, although his impulses were sometimes too strong for him. Medicine had no effect on his attacks, and hence the desire of his friends for operation. On Feb. 17th, 1909, fenestration was performed in the usual way, usual fluid found, and usual good surgical results obtained. No attacks while in hospital. He was received at the Home for Epileptics, Maghull. During the year 1910, when he was under observation at the homes, he has had eight severe and two light attacks. He works steadily and is well conducted. During the last six months he has only had three attacks, one-fourth of what his normal number was before operation.

CASE 11.—A boy, aged 10 years, was admitted to the Royal Southern Hospital on Nov. 2nd, 1909. This child suffered during his first year from pneumonia and meningitis and chicken-pox, and when he was about 12 months old he began to have fits, supposed to be due to the meningitis. The attacks were numerous and short, and mostly affected the right side. The mother said the child appeared to be frightened, and then the right hand and arm began to twitch. The twitchings became more violent and extended to the whole of the right side; left side passive. Did not quite lose consciousness; lasted at most two minutes. He had marks of a flap on left side of his head above the ear, and on inquiry we found that he had been trephined at a children's hospital six years ago, when a thick layer of fluid was found but nothing else, and nothing was done. The opening in the dura was stitched up and the bone replaced. No change had taken place in the attacks. He had since been treated with bromides, iodides, belladonna, diet, removal of teeth and adenoids, without benefit. In 1906 he had 204 attacks; in 1907, 522 attacks; in 1908, 450 attacks; and up to time of operation, Nov. 4th, 1909, he had 368 attacks. Operation of fenestration was performed on Nov. 4th. Extensive œdema, or rather a layer of flocculent fluid, with a thin membrane on surface. This surface membrane was removed and much fluid came away freely. Wound healed in usual way. During convalescence he had 54 slight attacks. The attacks did not diminish during 1910, and in one month, November of that year, he had 800 attacks. At the time of writing his attacks are about one-half of the original number. His mental condition is very much better and he is much less irritable.

CASE 12.—A boy, aged 7, was admitted to the Royal Southern Hospital on Dec. 7th, 1909, suffering from epileptic fits affecting mostly the right side of the body. No heredity; his parents were alive. His grandfather suffered from rheumatism and died from consumption. The fits began two years ago, and averaged about 24 per month, or about one daily. Right arm and leg work especially. Was quite unconscious and cyanosed during attack. On Dec. 9th, 1909, I trephined, and the dura mater was fenestrated on the left side; œdema on the surface of the convolutions. Wounds healed by first intention. No attacks while in hospital. He then went home for some time, and was admitted to the school at Maghull. Attacks much reduced; now average ten per month, a reduction of nearly two-thirds. Mental and physical condition much improved.

CASE 13.—A male, aged 30, was admitted to the Royal Southern Hospital on April 1st, 1908. He had suffered from epilepsy for the past 16 months. Twenty-two months ago patient was working under an iron girder. He suddenly stood up and struck the back of his head. He was senseless for about half an hour. He noticed nothing further and received no treatment. About 16 months ago he began to develop fits every six weeks. The fits are confined to the right side. He always has a left-sided headache, shooting from front to back, before fits. He loses consciousness instantly. The fits (*grand mal*) have gradually increased, especially since he was operated on in a country hospital, coming now every week instead of every six weeks. Medicine does not seem to have any control over number or severity. Knee-jerks exaggerated, slight ankle clonus on both sides. No paresis anywhere; eyes normal. No marks on skull except that of trephining a little below vertex on right side. Operation April 2nd, 1908. Fenestration performed in the usual place above parietal eminence. The brain was much congested and the œdema was considerable. The wounds healed as usual by first intention, and the patient left hospital on May 2nd, 1908, having had six fits during his convalescence. On June 6th, 1909, the patient's wife wrote: "In answer to your kind letter, I am pleased to say my husband has much improved. He is heavy at times and has to lie down, and the few attacks that he has are slighter than they were before operation."

CASE 14.—A man, aged 42, admitted to the Royal Southern Hospital on Nov. 26th, 1907. Ten years ago patient was wheeling a hand cart containing two machines, when he slipped and fell against a kerbstone. He had to let go the hand-cart and the two machines fell on his head and body. He was bruised and rendered unconscious, and taken to a hospital, which he attended for some time afterwards as an out-patient. A fortnight later he had a fit in the street, in which he was incontinent and bit his tongue. Lately he has had one or two attacks a fortnight. No sensory aura. His father had died from phthisis, aged 39, and his mother from pneumonia, aged 58. Three sisters were living, and a brother and sister had died in infancy. The patient worked at odd jobs, was of steady habits, and had had no venereal disease. There was a slight depression of the skull above the superior curved line on the right side, but it was doubtful whether it was traumatic in origin. Patient mentally a little simple. Reflexes also muscular, and sensory functions normal on both sides. Vision of eyes normal. No indication for operation except the depression. Nov. 23th, 1907: Fenestration operation performed on the right so as to take in the depression on the skull; no signs of injury to the bone. The bone was very soft and vascular. There was a localised patch of œdema at the lower part of the opening in the skull; elsewhere the brain looked healthy. The wound healed by first intention. Fits during convalescence, 62. At the end of December it was manifest that no impression had been made on the disease, and that we had been deceived by the depression, and had opened the wrong side of the brain. With the approbation of the patient and his friends we operated on Jan. 2nd, 1908, on the opposite side. Here the surface of the brain was very œdematous—a contrast to the same parts of the opposite side at the previous operation. The wound healed as usual. Fits after operation, 40. Discharged Jan. 31st, 1908. It was noticed by the house surgeon that the patient was much brighter, and cerebration was much quicker after the second operation. He was sent to the Colony at Maghull, where his attacks became much less frequent, but he was erratic and difficult to control. He ran away, and was for a time in the workhouse wards in Liverpool. Here he had no attacks for two months. He left that place and was found at West Derby workhouse; his attacks were kindly reported to me by the resident, Mr. O. H. Williams, for a month. No attacks in the day, and 20 at night during that time. The case was a promising one, had it not been for the unmanageable and erratic character of the patient. On the whole he had improved, but being restless he did not carry out any treatment and went from one institution to another as the impulse took him.

CASE 15.—A schoolgirl, aged 11 years, admitted to the Royal Southern Hospital July 16th, 1907. Her parents, brothers, and sisters were all alive. No evidence of heredity. Six months previously to the first fit, four years ago, she had a fright by a dog, which jumped up on her. When 8 years old a chimney-pot fell on her head, but this was not evidently the cause of the disease which had appeared a year previously. The month before admission she had two series of attacks. She had been at school before she was taken ill, and could read and write. Occasionally she was obstinate and difficult to manage, would shut herself up in a room, locking the door behind, and would not open it and the door had to be forced. Her father could control her but not any of the rest of the family. The attacks occurred in batches, but sometimes would continue for 13 hours, but generally they lasted eight hours. The left arm and leg were the first convulsed. Fenestration performed July 17th. There was considerable œdema along the vessels, especially posteriorly. Drained as usual. Healed by first intention. Had one fit on August 4th, no more while in hospital. She was at the epileptic school at Maghull during all 1910. She had only had one mental equivalent, early in that year, when she was obstinate and difficult. She had had one and sometimes two attacks per month, but these were all single, and passed away quickly. She was intelligent, clean, and tidy, and earned good reports, and tried hard to do her best to be agreeable.

CASE 16.—A girl, aged 10, of rather low extraction, and the subject for some time of granular lids, now cured. She had been epileptic for two years past; no heredity discoverable. The attacks average four to five every night, and were apparently unaffected by medicine. The twitching mostly affected the right side. Face said to be drawn to the left. The child was operated upon in the workhouse hospital on June 22nd, 1910, in the usual way. During the first 24 hours there were 12 attacks; most of these were slight and of short duration. Next day 12 attacks, next day 11 attacks, next day 10 attacks. The fits continued for two weeks, becoming gradually fewer in number and less severe, and for a time before discharge she did not have any. No medicine administered. She was discharged from the surgical department on August 16th. She remained in another department of the workhouse hospital till the end of November, 1910, when she was transferred to the Epileptic School at Maghull, not having had an attack since August 9th. On June 19th, 1911, she was still without attacks and did not require any medicine.

CASE 17.—A girl, aged 13, was admitted to the Liverpool workhouse hospital in 1910. She had been subject to epileptic fits for the last nine months, the cause being unknown except that she had a fall on the forehead nine years ago. No evidence of heredity. Attacks usually occurred during the night. Twitching chiefly on the left side, the mouth being drawn to the left and the head turned to the left. Slept for some time after an attack. Average number, three or four daily. On May 11th fenestration was performed. Œdema distinct, but not so

much as is generally found. On the first day after operation she had eight fits, on the second day five, third day two, then none for a week. On the 22nd one fit, 23rd one fit, none after that, and no medicine until the middle of November when she had severe slight attacks. She was put on borax and sodium bromide, and the attacks immediately disappeared. She is now at the Epileptic School at Maghull.

CASE 18.—A man, aged 35, admitted to the Royal Southern Hospital on March 1st, 1910, suffering from right hemiplegia, aphasia, and fits. He was a very precocious child, being able to speak and even, it is said, to converse when ten months old. When about two years old he had some fits and aphasia and lost the power of walking. He slowly recovered, and was educated and able to do clerical work till two years ago. He then become epileptic, aphasic, and right hemiplegic, in which condition he was received into the Royal Southern Hospital under my care. There was no record of syphilis, but previous to operation he had taken iodide of potassium in large doses for some weeks without any effect. On March 3rd fenestration was performed, and a wide area of dura mater exposed. "The dura mater bulged and the vessels were distended and stood out in thick lines. The dura mater was incised, when the arachnoid bulged through the opening, presenting a picture as of several 'cysta' filled with clear translucent fluid with little white spots dotted in their walls." The arachnoid was opened where it bulged through the dura, and a very large quantity of clear fluid escaped. Convolutions seemed smaller, and a finger could be inserted between them and the bone. No disease except collection of fluid. Drainage as usual. In 48 hours the drainage-tube was removed and the dressings found saturated with fluid. The wound healed satisfactorily, the aphasia remained, but the paralysis and fits disappeared. He was seen on March 1st, 1911; he had had one fit since discharge and is back at work. Hemiplegia quite gone and speech returning slowly.

CASE 19.—The patient was a boy, aged 11. Father killed by accident. A mother, two sisters, and a brother were alive and well. The habits of the parents unknown and no history of heredity. The boy fell off a wagon four years ago and was said to have hurt his head, but nothing definite known as to part injured and no evidence of injury to skull now to be seen. Three or four years ago he commenced having fits, having three to four daily since. Bromides had had very little apparent effect, and hence request for operation. He was admitted to the Liverpool workhouse hospital on Sept. 29th, 1909. The fits always began on the right side, especially the right arm, which became stiff. After fit was over he was often found to be doubly incontinent, and was heavy, stupid, or dazed for an hour or more. The week before operation he had 38 fits. On Oct. 22nd, 1909, the left motor area was fenestrated, the usual fluid drained away, and wound healed with the usual aseptic result. On Dec. 10th, 1910, it was noted that the child after operation was much better in health. The incontinence had disappeared and his mental condition was much brighter. Several days now intervened between attacks, and these were now rarely severe. He was sent to the Epileptic School at Maghull. The fits are now much less, one-tenth of what they were before operation. His mind is clear.

CASE 20.—The patient was a boy aged 5 years. His parents were alive. No history was obtainable about their habits or about any hereditary tendencies. A grandmother suffered from rheumatism. Epilepsy ascribed to a fall in the street, but no visible effects produced and the time of the fall unknown. He had his first fit on August 8th, 1908. Has had three to four fits daily. Patient uttered an unintelligible sound, the right arm was held out stiff, the fingers working violently, then the right leg became affected. There was some paralysis of the right side of the body. The child was intelligent, but of course entirely uneducated. He was admitted to the Royal Southern Hospital on Oct. 22nd, 1909, and operated upon two days after. The usual fenestration was performed over the left motor area, with the usual satisfactory surgical results. He was then taken home by the mother, and finally received into the Epileptic School at Maghull on April 29th, 1910. On June 26th, 1911, he was still at Maghull. He has had no fits and no medicine since operation.

Such are the brief records up to date of 20 cases that have been operated on by a definite operation; most of the patients have been under observation and have had rational treatment afterwards. There are other patients whom I have seen occasionally but not lately who were promising well, but the treatment I recommended could not be carried out and they fell again into the hands of quacks who took all the credit that was going for any improvement. Nevertheless, in every case some benefit was observed, and probably much more would have accrued had wise counsels prevailed. My experience shows that the results in children are more uniform and more permanently successful. In adults the benefit is the more permanent the larger the opening, but in these the influence of the operation becomes weakened as the scar becomes hard and tense. In all intractable cases in young life the operation can be strongly recommended. For instance, in Case 11 medicines were useless, and the attacks were nearly two a day under approved hygiene and medical treatment. After operation medicine has a more distinct and definite ameliorative result, and the gradual improvement in this respect due to the operation was undoubted.

I am quite familiar with the theory, that will again be revived on reading this paper, that the mental effects of an operation on epileptics may account for any improvement. The mental impression cannot be produced on imbecile epileptics, however, although it might have some effect on the disease in some intelligent adults. My first cases did not know they were epileptics, did not know they were operated upon or that they had any need of relief. And none of the more rational children had really any better knowledge. I think the good results may be ascribed fairly to the removal of the fluid and to the facilities for its absorption afterwards. The improvement in the mental condition of the patients has been very marked and has been spontaneously observed by nurses, house surgeons, and relatives.

If, as I hope, in the future the treatment of epilepsy should be taken in hand in a rational, systematic, and determined way, the operation will be available for a certain number of intractable cases at a sufficiently early stage when good results may be expected from it, and when the patient can be retained under good hygienic and medical control until the conditions of the brain have become such that the fits will disappear. In many cases of epilepsy no operation is necessary, and in others the necessary aura may be absent, and in such it would be difficult to find the part of the brain where the fluid is to be found. I believe, however, in the work detailed in this paper we have some hope of relief when other measures have failed, and that we have also a clue to another theory of epilepsy that may prove of more practical benefit than that which holds the field at the present time. Of that more anon.

Conclusions.

1. There are some cases of epilepsy that prove intractable to general medical and hygienic treatment, and these, unless the disease be somehow arrested, will soon terminate in imbecility and death.

2. In these cases the affected motor area is covered by more or less œdema of the pia-arachnoid, and this œdema probably so affects the cells of the cortex as to predispose to, or cause, the epilepsy and imbecility.

3. In cases with localising aura, we can, by the operation of fenestration of the dura mater, drain these œdematous areas and prevent re-accumulations.

4. By the operation the progress of the disease has always been retarded. In several the fits have stopped, and in many have been reduced to fractions of the original number.

Liverpool.

THE VIABILITY OF HUMAN CARCINOMA IN ANIMALS.[1]

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THE object of the present research is to determine the cell changes occurring in portions of human carcinoma implanted into animals, and more particularly to ascertain if such implanted tissues are capable of surviving for a time, and if so, the manner in which they succumb.

Implantation of human carcinoma into animals has been made by numerous observers, and the failure of such implantations to produce tumours is now an ascertained fact. Among the earliest experiments are those of Ballance and Shattock,[2] the objective of which was to determine if human carcinoma was transferable from man to animals; in these observations the immediate effect of implantation upon the cells of the growth was not determined. Von Langenbeck,[3] Jürgens,[4] Dagonet and Mauclaire,[5] and Gaylord[6] produced in animals, by inoculation of carcinoma, tumours which, however, differed in structure from the original. Lewin[7] succeeded in obtaining inoculable granulomata in dogs by implantation of a human ovarian carcinoma, and also in rats by inoculation of a carcinoma of the cervix of the human uterus; this author made numerous attempts to obtain inoculable tissues by implantation of human carcinoma, but only the above two were successful.

[1] A paper read before the Royal Society on June 29th, 1911.

[2] A note on an Experimental Investigation into the Pathology of Cancer, Royal Society's Proceedings, 1890, vol. xlviii., p. 392; Brit. Med. Jour., 1891, vol. i., p. 565.

[3] Quoted by Lewin, loc. cit.

[4] Ibid.

[5] Versuche über die Uebertragbarkeit des Menschlichen Carcinoms auf die Ratte, Archives de Médecine Expérimentale, 1904, No. 5, September.

[6] Ueber die Bedeutung der Plimmerschen (bezw. Sjobringschen) Körperchen und die durch Menschliches Material erzeugtes Krebswucherung bei Tieren, Zeitschrift für Krebsforschung, 1903, vol. i., p. 93.

[7] Ueber Versuche, durch Uebertragung von Menschlichen Krebsmaterial verimpfbare Geschwülste bei Tieren zu erzeugen.

The effect of implantation of mouse carcinoma and sarcoma into rats has been studied by Ehrlich,[8] who found that during the first 8–10 days after inoculation the rate of growth was scarcely less than before implantation; at the end of this period, however, growth ceased and gradual absorption occurred.

The method adopted in this research was that of implanting subcutaneously, with aseptic precautions, several selected portions of a malignant growth, freshly excised (pieces being put aside for microscopical observation), and following up the changes taking place in the cells of the growth by reference to sections of the implanted masses, removed for examination at different periods. The time elapsing between separation from the human body and the completion of implantation varied between 20 and 25 minutes. Implantation was effected by puncturing the skin with a straight cataract knife, and introducing on the point of the knife a piece of tissue having the form of a cube of 1 to 1½ mm. The portions of tumour implanted were removed at intervals of 1 to 13 days.

The number of tumours used for implantation was 41; 10 tumours were, however, employed in connexion with unsuccessful implantations, so that only 31 need be referred to here. Of these, 19 were epithelioma (17 primary growths, 2 secondarily infected glands), 10 were scirrhus of the breast (9 primary growths, 1 secondarily infected gland), 1 was spheroidal-celled carcinoma, and 1 rodent ulcer. Implantation was made upon the monkey (20 tumours), rabbit (4 tumours), pigeon and guinea-pig (each 2 tumours), cat, rat, and mouse (each 1 tumour).

The usual causes of unsuccessful experiments were suppuration and failure to recover the pieces of tumour implanted. Suppuration was not met with so frequently as was expected, even in the case of growths ulcerated on the surface; when present sometimes every piece of a tumour used for implantation became the seat of suppuration, in other cases suppuration occurred at some of the sites of implantation, while at others no inflammatory reaction occurred. A more serious difficulty was failure to recover the portion of tumour implanted. In a small number of cases this arose from the piece of tissue lying near the opening in the skin by which it was introduced, and in consequence desiccation ensuing. In other cases the piece of tumour implanted appeared to have moved from its original position and could not be traced. Not infrequently the portion of growth implanted seemed to have undergone very rapid absorption, with the result that either the piece of tumour implanted could not be traced or no unmistakable growth of the original mass could be recognised in what is regarded as the remains of the implanted mass; difficulties of this kind were common from the fifth day after implantation onwards, and thus tend to limit the number of observations possible at later periods.

The result of implantation is summarised in the table

Implantation of Human Carcinoma. The + and − signs indicate the presence and absence respectively of living cells (L) and mitoses (M).

No. of experiment.	Tumour.	Animal used for implantation.	Condition of implanted portions of growth at end of—																									
			1 day.		2 days.		3 days.		4 days.		5 days.		6 days.		7 days.		8 days.		9 days.		10 days.		11 days.		12 days.		13 days.	
			L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M	L	M
21	Epithelioma of lower jaw	Monkey.	+	+	+	−																						
22	Epithelioma of floor of mouth	,,	+	−	+	−																						
23	Epithelioma of tongue	,,	+	−	+	−																						
24	Epithelioma of prepuce	,,	+	−	+	−	−	−																				
29	Epithelioma of fauces, glands secondary to	,,	−	−	+	−	+	−													-	-						
31	Epithelioma of jaw and tongue, glands secondary to	,,	−	−	−	−	+	−	−	−																		
32	Epithelioma of cheek	,,	+	−			+	−	−	−	−	−																
34	Epithelioma of lower lip, glands secondary to	,,			−	−							−	−			−	−										
37	Epithelioma of tongue	,,					+	−					−	−							−	−			−	−		
38	,, ,,	,,							−	−					−	−												
18	,, ,,	,,	+	+																								
27	Scirrhus of breast	,,	+	+	+	+	−	−	+	+																		
28	,, ,,	,,	−	−	+	−	−	−																				
30	,, ,,	,,	+	−			+	−	−	−					−	−												
33	,, ,,	,,					+	−	+	−	−	−	−	−														
39	,, ,,	,,							−	−					−	−							−	−			−	−
41	,, ,,	,,			−	−					−	−			−	−												
42	,, ,,	,,			+	−			+	−							−	−										
26	Spheroidal celled carcinoma of breast	,,	−	−	−	−					−	−																
35	Rodent ulcer of scalp	,,			+	−					+	+																
5	Epithelioma of tongue	Guinea-pig.			+	−																						
10	Epithelioma of lip	Rat.	+	−			−	−																				
12	Epithelioma of ear	Rabbit.	−	−																								
15	Epithelioma of temple	,,	−	−																								
14	Recurrent epithelioma below jaw	Pigeon.	−	−																								
16	Epithelioma of tongue	,,	+	−																								
16	,, ,,	Mouse.	+	−																								
18	,, ,,	Cat.	+	−	+	−																						
4	Scirrhus of breast	Guinea-pig.	+	−									+	−														
7	,, ,,	Rabbit.	+	−	+	−																						
9	Scirrhus of breast, axillary glands secondary to	,,	−	−									−	−														
	Summary	+	14	3	12	1	6		3	1	2	1																
		−	8	19	4	15	4	10	5	7	5	6	3	3	4	4	2	2			2	2	1	1	1	1	1	1
		Per cent.	64	14	75	7	60		37	12	40	14																

[8] Beiträge zur Experimentellen Pathologie und Chemotherapie. Leipzig, 1909, p. 135.

The usual course of events occurring after implantation was as follows: In naked-eye aspect the tumour, which was usually easily recognisable, being moist and greyish in aspect and lying loosely among the tissues of the host, did not appear much changed during the first two days. After this period it became dry and increasingly adherent to the surrounding tissues, from which it was less readily distinguished after the fifth day. On microscopic examination the central portions of the growth were found to have undergone necrosis during the first two to three days, presumably in part, at any rate, owing to defective supply of oxygen. Some of the cells at the periphery of the implanted mass, on the other hand, at first remained unchanged in appearance and exhibited more or less evidence of proliferation, generally presenting for the first two to four days mitoses, though fewer in number than was exhibited by the growth before implantation. After the fifth day all the cells of the implanted tumour had become altered and ceased to exhibit mitoses; their nuclear chromatin no longer presented the usual arrangement, but had become collected into irregular masses or fragments. Accompanying the necrotic changes occurring in the portions of tissue implanted, leucocytes, mostly polynuclear, made their appearance in large numbers, being replaced subsequently by mononuclear cells before which the remains of the implanted tissue disappeared. The disappearance of a piece of tumour of the form of a millimetre cube appeared to be completed after the second week of implantation.

In the summary given in the table the proportion of observations in which living cells and mitoses were noted during the first five days after implantation is given in a percentage form. It will be seen that inhibition of the function of cell division is early marked, while cell death occurs (at the periphery of the implanted mass) more slowly. If the experiments made upon the monkey alone are considered, the percentages obtained are more regular, being respectively 67 and 25 on the first day, 69 and 8 on the second day, 67 and 0 on the third day, 37 and 12 on the fourth day, and 20 and 20 on the fifth day. The experiments made with animals other than the monkey are too few in number to yield percentage values, but the circumstance that mitoses were not met with after implantation suggests that human carcinoma is less viable in these animals than in the monkey.

The result of implanting human carcinoma upon animals, it will be observed, is similar to that of implanting mouse carcinoma upon rats already referred to. In both cases a limited degree of inoculability is observable, some of the implanted cells continuing for a time to live and to divide, but whereas in the latter case the rate of proliferation is at first little affected and regression does not begin till the eighth to the tenth day, in the present experiments the cells of the implanted portions of tumour ceased to proliferate at an earlier period, and were no longer living after the expiration of five days.

In conclusion I must express my indebtedness to Dr. Wakelin Barratt for the assistance he has given throughout the course of this work.

Summary.—1. Portions of human carcinoma implanted into animals were observed during the first five days to retain their vitality and to exhibit mitosis after implantation. 2. After the expiration of this period no evidence of vitality was observed. 3. Mitosis was markedly inhibited within 24 hours of implantation, whilst the life of the implanted cells was abolished less rapidly.

Birkenhead.

MEDICO-PSYCHOLOGICAL ASSOCIATION. — The autumn meeting of the South-Eastern Division of this association will be held, by the courtesy of Dr. Hugh Kerr, at the Bucks County Asylum, Stone, Aylesbury, on Wednesday, Oct. 4th. After the transaction of formal business, Dr. John Turner will read a paper on A Classification of Insanity, and Dr. J. F. Corson one on Insane Heredity in the Insane of a Rural Population. Dr. Kerr has invited the members to luncheon at the Bucks County Asylum, and they will dine together, after the meeting, at the Café Monico, Piccadilly-circus, W., at 6.45 P.M., provided that a sufficient number agree to dine. Communications concerning the dinner (5*s.*, exclusive of wine; morning dress) should be made to Dr. David Hunter at the West Ham Borough Asylum, Goodmayes, Essex.

AN

EXPERIMENTAL COMPARISON BETWEEN "606," MERCURY, AND IODIDE OF POTASSIUM AS ANTISYPHILITICS.

BY JAMES McINTOSH, M.D. ABERD.,
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AND
PAUL FILDES, M.B., B.C. CANTAB.,
ASSISTANT BACTERIOLOGIST TO THE LONDON HOSPITAL.

(*From the Bacteriological Laboratory of the London Hospital*—Dr. WILLIAM BULLOCH.)

EXPERIMENTAL investigations in syphilis have become more general since the demonstration by Tomasczewski of the possibility of a testicular infection in the rabbit. This animal is more suitable than monkeys on the score of expense, and, further, the lesions are well localised for observation and are very rich in spirochætæ. Positive inoculations are readily obtained on the skin of the scrotum or deeply into the testis. Some disadvantage is, however, to be found in the fact that in the rabbit the disease is practically local and liable to spontaneous cure. No generalised symptoms are observed, although the virus is demonstrable in the internal organs by means of inoculations of these organs into other animals. The antisyphilitic effect of mercuric chloride has been studied on the rabbit by Tomasczewski, and mercuric atoxyl by Uhlenhuth and Manteufel. Hata also worked largely on this animal when determining the value of "606." We have investigated the antisyphilitic power of "606," mercury, and potassium iodide.

1. *Dioxydiamidoarsenobenzol ("606").*

6/12/10.—Rabbit No. 4 was inoculated on both testicles with the virus obtained from a chancre on another rabbit. 10/1/11.—An indurated nodule was detected in the skin of the scrotum on the left side. 16/1/11.—A small nodule was found on the right testicle, that on the left was larger and contained many spirochætæ. 20/1/11.—Ulceration started in the left-hand lesion. 31/1/11.—The ulcer was larger, measuring 2 × 1·5 cm., its edges were indurated and rolled (Fig. 1). On this day the animal (2975 grm.) was injected intravenously at 12 A.M. with 0·1 grm. of "606" in 40 c.c. of fluid. Following the injection its temperature rose 4° F. in 3½ hours. Six hours after the injection, however, the temperature was again normal. No symptoms of general disturbance were observed.

The *effect on the spirochætæ* was followed by means of the method of dark-ground illumination.

At 12 A.M. (the time of inoculation): Numerous spirochætæ were found in every field in a state of unusual motility. 1 P.M.: No change. 1.30 P.M.: No change. Spirochætæ perhaps less active. 2.30 P.M.: Spirochætæ certainly less motile. 3 P.M.: No further change. 3.30 P.M.: Spirochætæ fewer in number, and some were observed to be immobile. 4.30 P.M.: Number of spirochætæ much less. 5 P.M.: Only a few motile organisms seen, the rest motionless and fragmented. 6 P.M.: Only two intact but immobile spirochætæ seen. 6.30 P.M.: A few fragments only observed.

The destruction of the spirochætæ, therefore, began about three hours after the injection and reached its maximum four or five hours after. The effect was complete in seven hours. In man we have found the corresponding figure to be nine hours after adequate treatment.

The effect on the lesion exerted by this injection was very striking. Within two hours it appeared that the pain had disappeared, since the animal no longer winced under the frequent examinations. In six hours the ulcer had shrunk so much that the scab appeared relatively too large. Fig. 1 shows the lesion before treatment (31/1/11):—

1/2/11.—Chancre much smaller. No spirochætæ found. 2/2/11.—Continued diminution. The scab was detached all round its circumference. 6/2/11.—The scab fell off. 8/2/11.—The lesion as in Fig. 2. 13/2/11.—The ulcer still smaller. 16/2/11.—Completely healed, as in Fig. 3.

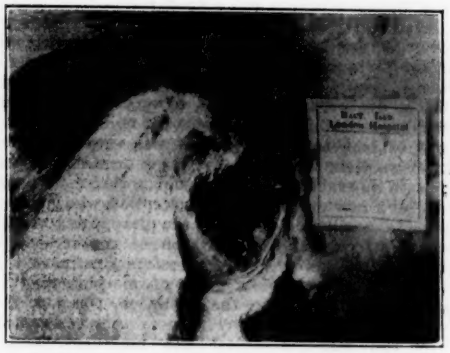
During the process of healing described above chancres on control rabbits remained unaltered. In the course of eight weeks the Wassermann reaction showed a marked quantitative diminution in strength. Owing to a frequent occurrence of this reaction in normal rabbits the final result may perhaps be taken as negative, but these effects should be looked upon with reserve.

2 *Mercury*.—Since it was required to obtain the maximum effect the injection was given intravenously in the form of biniodide, this salt being most suited for the purpose.

14/12/10.—Rabbit No. 7 was inoculated in both testicles with the virus from another rabbit. 17/1/11.—A hard nodule was found in the

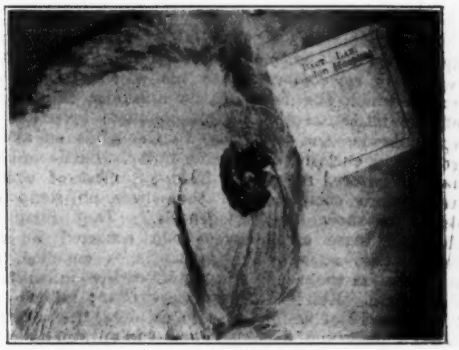
left testicle containing many spirochætæ. 20/1/11.—The chancre was much larger and already ulcerating. 10/2/11.—The chancre measured 1·5 cm. in diameter; it was covered with a thick crust, but there was no induration of its edges. (Fig. 4.) At 12 A.M. on this day 0·005 grm. of biniodide of mercury was injected intravenously in 20 c.c. of saline. The highest temperature 103° F. (normal about 101° F.) was noted six hours after the injection. Next day the temperature was normal. No ill-effects were observed other than thrombosis and subsequent gangrene of a small section of the ear. Three days later (13/2/11) a further intravenous injection of 0·008 grm. of biniodide was given.

FIG. 1.



The lesion before treatment.

FIG. 2.



The lesion a fortnight later.

The *effect on the spirochætæ* was found to be much less after these two injections than after the injection of "606." No alteration was found 24 hours after the first injection, while even four days after a few spirochætæ were found. On the fifth day, however, no organisms were detectable.

The *effect on the lesion* was as follows:—

10/2/11.—Date of first inection. Chancre as in Fig. 4. 11/2/11.—No change. 13/2/11.—No change. Second injection. 14/2/11.—Chancre slightly smaller. 20/2/11.—Considerably smaller. Scab still *in situ*. 24/2/11.—Lesion much smaller. Scab dropped off. Fig. 5. 6/3/11.—Chancre quite healed.

FIG. 3.

Testicular syphilis in the rabbit. Effect of injection of 0·1 grm. of "606."

"606" represented one-sixth of an adult human dose, while the amount of mercury represented three adult human doses.

3. *Potassium iodide.*—According to Neisser this salt has direct spirochæticidal powers. Tomasczewski, however, is of the opposite opinion; he nevertheless considers that iodide is capable of enhancing the therapeutic effect of mercury.

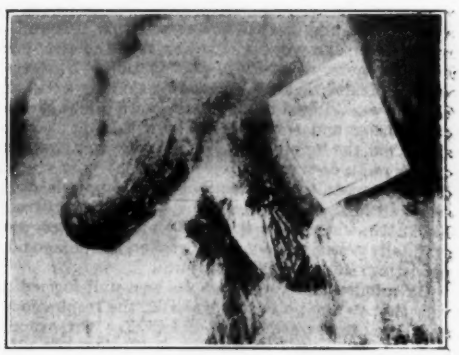
6/4/11.—Rabbit No. 13 was inoculated in both testicles with virus from another animal. 18/5/11.—A nodule was found in the skin over the right testicle. 16/6/11.—The nodule was now the size of a pea. 0·2 gramme of potassium iodide in 20 c.c. of saline was injected intravenously on five different occasions at intervals of two days. No general disturbance was observed.

No *effect on the spirochætæ* was observed and no *alteration in the size of the lesion.*

Conclusions.—1. "606" in experimental syphilis of the rabbit possesses spirochæticidal properties much in advance of mercury. 2. Potassium iodide is not a direct antisyphilitic.

FIG. 4.

FIG. 5.



Testicular syphilis in the rabbit. Effect of injection of 0·013 grm. of biniodide of mercury.

In the control rabbits no alteration occurred. The Wassermann reaction of the animal in this case was negative throughout the experiment.

As a comparison between these effects obtained by "606" and mercury it may be roughly assumed that the amount of

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A CASE OF INTUSSUSCEPTION OF THE APPENDIX VERMIFORMIS IN AN ADULT,

WITH A PATHOLOGICAL REPORT AND AN EXPLANATION.

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IN recording this case as one of intussusception of the appendix I have been guided by Kelly's[1] classification and regard it as conforming to his second group—that is, one in which the base of the appendix forms the apex of the intussusception. The complete inversion of the appendix is, and must be, in the adult on anatomical grounds a curiosity of extreme rarity. Battle and Corner[2] have discovered reports of 29 cases, most of which they say "were complete and there was no scrap of evidence to show its pathogenesis." They further state that all these cases except one occurred at an age before that at which appendicitis is common, and in no case was there any history of earlier inflammation of that organ. Kelly's findings are similar; he has analysed 20 cases, 19 of which were in children, the average age being 4 years and 8 months, and one only in an adult who was 40 years of age, but of this last there are no details. The present case appears to me of more than usual interest because, first, contrary to expectation, the intussusception occurred at an age when appendicitis is most common; secondly, an attack of appendicitis was a predisposing cause; and thirdly, intussusceptions in the adult are still a rarity (though Codman was able to collect 29 cases of intussusception at the Massachusetts General Hospital between the years 1898 and 1908, 9 of which were in adults). Their consideration has not received anything like the care devoted to similar lesions in children. It will therefore serve as a reminder that such cases do arise; that they are difficult of diagnosis and require prompt surgical treatment, for delay can only increase the surgical risks and may even render such assistance futile, the patient dying during a period of masterful inactivity.

The patient in the case here recorded was a male, aged 18 years, by occupation a weaver. Up to the time of his illness he had always been healthy. On Jan. 11th, 1911, in the afternoon, whilst lifting a heavy beam, he felt a sudden pain in the pit of his stomach, which caused him to stop at once, and it was so intense that he was not able to resume for some time. During the night the pain continued, but on the following morning it was not bad enough to stop him going back to work. On the morning of the 13th the pain became much more severe, and was noticed now more in his right side, and he was sick on several occasions. Under the impression that he had "strained his inside" he went to see Dr. W. J. D. Bromley of Padiham, who sent him to bed, considering him to be suffering from appendicitis, and treated him accordingly. Here the patient remained until a week later, when, feeling better on the 20th, he once more resumed his occupation. However, it was with difficulty that he managed to do his work, and on the 25th he was obliged to give up on account of several attacks of vomiting and severe pains of a griping character felt at and about the umbilicus. Dr. Bromley was again called and discovered a distinct lump, very evident when the pains were on, and peristaltic contractions of the bowels could also be seen and felt. The patient was kept under observation until Feb. 24th, when, as he appeared to make no progress but was gradually getting thinner and weaker, the pains and vomiting persisting, he was sent to hospital.

On admission he was seen to be a well-formed youth but very thin. The pulse-rate was 100, the respirations were 24, and the temperature was 98·6° F. On examining the abdomen there was no marked distension, but although the abdominal wall was for the most part soft, there was some slight resistance in the lower part and tenderness on deep palpation below and to the left of the umbilicus. No lump was then felt, but as a result of our manipulations a pain came on accompanied by considerable rumbling and gurgling noises in the bowel, and the rapid appearance of a lump below and to the left of the umbilicus. The cramp-like pain made the patient groan, and to obtain relief he drew up his legs, doubling in a similar way to a person suffering from severe colic. As the cramp diminished the tumour felt less hard, altering its position, and with complete cessation of the pain was lost. On examination of the rectum no tumour was felt, but there was very marked ballooning, and the rectum and anus were exquisitely tender. The patient was kept under observation for six days, and during this time the house surgeon, Dr. D. J. McLaren, verified the previous findings on several occasions. The paroxysmal pains were noted to be more frequent after meals—in fact, he was afraid to eat a good meal—their intensity varying from day to day. The more severe pains were relieved by the administration of morphine. During this time his diet for the most part was liquid—beef-tea, diluted milk, and panopeptone. There was now no vomiting. He passed wind freely by the anus and had daily two or three small loose motions containing some mucus but no blood.

It was evident that the patient was suffering from a chronic obstruction, the site being, in our opinion, the pelvic colon; as to its exact nature we could not be more definite than suggest a new growth. Intussusception was mentioned but put aside, partly on account of the disappearance of the tumour, its rarity, and the condition of the stools. An exploratory laparotomy was therefore performed on March 2nd. A quarter of a grain of morphia was given half an hour previously to the operation, the anæsthetic being chloroform followed by ether. An incision was made in the mid-line below the umbilicus, and on inserting the hand into the wound an elastic tumour was felt almost in the mid-line extending upwards a considerable distance out of the pelvis. The wound was rapidly enlarged above the umbilicus and a huge intussusception thus exposed taking the form of a compressed U, involving the greater part of the colon, the proximal limb having a semi-solid elastic consistency, the distal portion being empty, stretched, congested, and at the same time thickened colon turning up towards the splenic flexure. An attempt was now made to reduce the intussusception by manipulation, and we succeeded after much trouble and loss of valuable time in unravelling all except 4 inches about the ileo-cæcal junction. The colon unravelled in this manner was found to have an unusually long and thickened mesentery—in fact, all the parts involved were so very much swollen, congested, and ragged from tearing adhesions during the separation of the parts that I determined to resect the whole of the damaged part, in all about 4 ft. 2 in., comprising 2 ft. 3 in. of small bowel and 1 ft. 11 in. of large. The divided ends were then closed and a lateral anastomosis was made between the ileum and the pelvic colon. The wound was sewn up in layers, and the patient returned to the ward just under two hours from the beginning of the anæsthetic. He received about three-quarters of a grain of morphia during the first 48 hours after the operation for the purpose of diminishing peristaltic movement of the bowel. His recovery was rapid, without any complications, and excellent in every way. His bowels moved naturally on the fourth day. He left hospital on March 26th, and he is now able to follow his usual occupation.

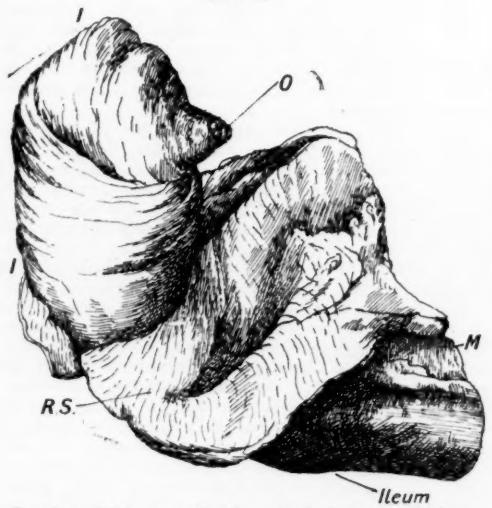
Pathological Report.

On cutting open the resected gut the apex of the intussusception was found to taper off on its internal lateral aspect in a marked conical projection overhanging the ileo-cæcal valve, but not blocking it, having a central aperture which admits a fine probe a distance of about half an inch. I concluded at first that this must be a partial inversion of the appendix. The actual condition is well shown in Figs. 1 and 2, views respectively from the anterior and internal lateral aspects of the specimen. A coronal section (Fig. 3) was made, fortunately bisecting the appendix and showing its relation to the small and large bowel. The specially striking features relating to the appendix are thus seen to be: (1) the occlusion of the lumen with the exception of a cystic space at the tip; (2) the mucosa is more or less destroyed and replaced by fibrous tissue which similarly fills in the lumen; (3) a prolapse or pouting of the mucous membrane at the base forms the conical projection into the colon already mentioned, and contains what remains of the appendical canal—there is just a suspicion of a partial inversion of the muscular coat also at the inner angle of this basal part; and (4) dimensions of appendix—length 3⅛ in., of which ¾ in. inverted, greatest

diameter ⅜ in., narrowest diameter ¼ in., distance between orifice of appendix and ileo-cæcal valve ⅜ in. One other point of importance is shown—namely, that the peritoneum has been stripped away from the caput coli and has become adherent to the appendix, the intervening space being filled in with a honeycombed arrangement of fibrous tissue, the meshes of which are occupied by a dark brown substance, apparently organising blood clot.

The above pathological data are most interesting, in that they give the clue to the origin and sequence of events described in this youth's case. From the thickened fibrotic and cystic condition of the appendix one may surmise that a previous subacute inflammatory state was actually in process when he strained himself on Jan. 11th. The condition then became suddenly intensified, giving rise to the severe pain at the pit of the stomach, which I regard as his first symptom—that is, an acute attack provoked in a chronically diseased appendix. The actual cause of the sudden pain can be ascribed to the trauma of the violent muscular exertion whilst lifting, which in itself is an acknowledged cause of appendicitis, possibly causing destruction of adhesions by pressure or compression, and thus a fresh involvement of the peritoneum (Lennander) or stimulating a spasm of the muscular wall of the appendix leading to referred pain (J. Mackenzie).

FIG. 1.



Drawing of intussusception from front, shown by slitting below along anterior longitudinal band. I.I, Intussusceptum, mucous lining of inverted cæcum and colon exposed. R.S., Reflected sheath, inner aspect. M, Mesentery. O, Orifice of appendix.

As the cyst was at the tip and well shut off from the root of the appendix by intervening fibrous tissue the most likely site left for a fresh inflammatory outbreak would be the base where the mucosa is still existent. The result of the reaction consequent upon an increased exudation would be swelling of the mucosa towards the lumen of the cæcum. The base of the appendix, being already in a fibrotic condition, would block further exudation in that direction, and thus we have produced the cone-shaped projection which is practically the origin of the so-called inversion of the appendix.

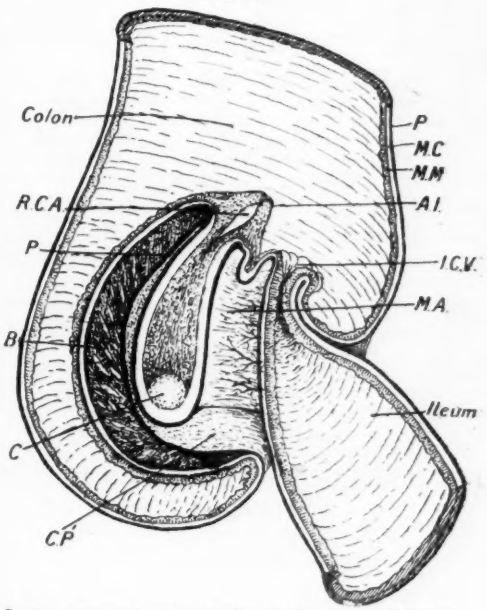
But there is more to explain. The appendix on one side has become adherent to the caput coli, presumably from an extension of the inflammatory process from the interior of the base of the appendix to the adjacent peritoneal coverings. This should tend still further to bulge in the cæcal wall and intensify the inversive movement. Again, as a consequence of more violent muscular contractions, the peritoneal coat of the cæcum, which is now glued to the appendix, has separated and a hæmatoma formed, thus creating a large polypoid mass protruding into the colon above the ileo-cæcal valve. In this manner there is produced a pedunculated tumour in the colon.

Now, tumours of the intestine are a comparative frequent cause of intussusception in the adult, and here we have a complex tumour-like mass, in itself capable of stimulating extra violent contractions of the bowel, more or less blocking the ileo-cæcal valve, and thereby tending to stimulate further contractions. One other condition must not be forgotten as

FIG. 2.

Internal lateral aspect, showing relation of appendicular projection to ileo-cæcal valve. L.A., Lumen of appendix. I.C.V., Ileo-cæcal valve. I., Intussuscipiens (colon) turned back.

FIG. 3.



Semi-diagrammatic representation of the actual relation of the parts in the intussusception on coronal section. R.C.A., Remains of canal of appendix. P., Reflected and separated layer of peritonem detached from cæcum by organising blood clot, B. C., Cystic space at tip of appendix. C.P., Cæcal peritoneum stripped from muscular coat. M.A., Mesentery of appendix. I.C.V., Ileo-cæcal valve. A.I., Apex of intussusception. M M., Mucous membrane. M.C., Muscular coat. P., Peritoneum.

a very important predisposing cause in this youth's case. I refer to the unusual mobility of the colon owing to the presence of a long meso-colon, so that there was practically a combination of pathological, physiological, and anatomical influences favouring and accelerating the formation of the intussusception.

Since I have been writing up this case Eliot[3] and Corscaden have published their paper on Intussusception in Adults, and they have tabulated brief case histories of some 300 cases. Eighteen of these only are chronic with a known cause, and of these, the only one I have noticed similar to my own is the often-quoted case of Haasler,[4] although in their list are many others suggesting comparison. Haasler's patient was a woman, aged 42 years, with a prior history of trauma followed by severe vomiting. Upon this ensued acute pain about the navel extending to the right iliac fossa. Three weeks later a lump was felt, and attacks of griping pain then occurred at intervals for six weeks, the patient becoming markedly emaciated and constipated. A provisional diagnosis of carcinoma of the colon was made. At the operation a resection of the bowel was performed, and the specimen showed the appendix to be invaginated and forming the apex of the intussusception. Its lumen contained a small amount of fæcal material, and it (the appendix) "seemed not unlikely to be the starting point of the difficulty." Unfortunately, there is no detail as to the extent of the invagination, or whether one or all the coats were involved.

Rolleston's[5] case is the only one in which the prolapse of the mucous membrane of the appendix into the cæcum has been described as far as I am aware; but this was caused by a concretion. Dodds Parker[6] has communicated notes of a case of inversion of the appendix in a woman, aged 43 years. The appendix was microscoped and showed an inflammatory state. In this instance several round worms were found in the alimentary tract. He suggests that one had penetrated the appendix, thereby setting up inflammation, and the inflamed appendix had acted as a polyp, causing invagination and obstruction. Greer[7] gives an excellent description of a case in a child, and, judging from his illustrations, his and my specimens are very much alike. He suggests that the appendix was partly invaginated first, thus exciting the cæcum to contract, but he failed to find any evidence inciting the primary invagination of the appendix. I am emboldened to think that this inversion is possibly mucosa only, resulting from inflammatory action with or without the discharge of a concretion.

My object in quoting these several cases of intussusception of the appendix has been to bring out other evidence to bear on the suggestion that there may be some connexion between appendicitis and intussusception. Under certain conditions an attack of appendicitis may, as in the way described, give rise to the formation of an intussusception, and I believe that as more care is devoted to the investigation of such tumours both by the clinician and the pathologist, the appendix will be found to be the *fons et origo mali* in some, if not in most, of those cases that have hitherto been described as intussusceptions of the ileo-cæcal variety.

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Burnley.

FOREIGN BODIES IN THE VERMIFORM APPENDIX.

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SINCE the true nature of concretions in the appendix has been demonstrated, very little attention has been paid to the presence of foreign bodies in the appendix, and a certain number of the profession are inclined to be rather sceptical about them. If, however, a careful examination be made of the fæcal concretions which are so constantly present a foreign body will be discovered in a fair proportion of cases. Although I have never discovered a cherry-stone in the appendix, I have found various other bodies. In some cases these bodies have been free in the appendix and not associated with any fæcal concretion; in the majority of cases, however, the foreign body has formed the nucleus of a concretion. Some of the foreign bodies have been found outside the appendix in an appendix abscess; notable among these were two cases in which the appendix was found to be perforated, and a pin was found loose in an appendix abscess.

In three cases a round shot, such as is used for sporting purposes, was found in the appendix without any concretion and without any sign of inflammation, the operation having been done for symptoms of appendicular colic. In another case a triangular piece of glass, about ½ in. wide at its base, was found in the appendix without having produced any signs of inflammation of the serous coat, although the mucous membrane was ulcerated. In two or three other cases, where the appendix was apparently normal, fragments of egg-shell were found, and in others fragments of enamel from a saucepan were discovered.

In the second group a foreign body formed the nucleus of a definite concretion or was imbedded in soft fæcal material. A variety of foreign bodies were found, among which the most interesting were hairs. In two cases hairs had evidently been derived from a tooth-brush. In three cases hairs from a camel hair brush have been found, and in these cases I was able to elicit from the friends that the patients had recently been painting and had sucked their paint-brushes. In two or three other cases hairs were found, which most probably were human hairs and had been swallowed accidentally. In all these cases there were signs of more or less severe inflammation about the appendix previous to operation.

In another group of cases seeds form the nucleus of the concretion, the most common seeds being those of strawberries, raspberries, and figs. In a recent case at least 20 fig seeds were found in a soft concretion in the appendix. Grape seeds have also been found in two cases. In one case the nucleus of the concretion was found to be a thorn probably from a rose tree.

I am unable to give any accurate statistics, but my impression is that a foreign body has been found in about 20 per cent. of the appendices which I have removed. The interesting point is that a foreign body by itself sets up very little irritation, and does not produce acute inflammation; it is only when a fæcal concretion forms around it that acute appendicitis will occur. According to many authorities no foreign body or fæcal matter can enter a healthy appendix, and it is stated that some previous inflammation must occur in order to make it possible for the body to enter. If this is the case, a foreign body by itself could not have very much influence in producing appendicular disease. It is, however, more reasonable to suppose that the irritation of the foreign body excites an extra secretion of mucus, which is deposited upon the body, producing the concretion, and so becomes the starting-point of an attack of appendicitis.

Upper Wimpole-street, W.

A CASE OF ERYSIPELAS COMPLICATED WITH MENINGITIS FOLLOWING AN INTRA-NASAL OPERATION; RECOVERY.

BY L. A. PARRY, B.S. LOND., F.R.C.S. ENG.,
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THE patient, a healthy young man, aged 27 years, who suffered from symptoms of nasal obstruction which were not very severe, consulted a London laryngologist, who recommended a submucous resection of the septum. This was done on a Saturday in a nursing home, and on the following Monday the patient travelled to Brighton by train. He was advised by the operator not to leave the home so soon, but no special pressure was brought to bear upon him to induce him to remain longer. On the following Wednesday the patient was suddenly taken ill with symptoms of severe pyrexia, the temperature being 105° F. The only local sign detected was a slightly inflammatory condition of the interior of the nose in the neighbourhood of the operation.

The inflammation spread backwards, and soon the whole pharynx was involved in an attack of erysipelas. This began to subside in a few days, and then the inflammation spread forwards, extended rapidly, and soon the whole face and scalp were covered with the characteristic lesion of erysipelas. The patient appeared to be doing well, when suddenly he was seized with maniacal symptoms, convulsions starting in the right hand, spreading up the arm, and then becoming generalised, conjugate deviation of the head and eyes to the right, strabismus, rigidity of limbs, loss of reflexes, and finally coma, almost complete. Dr. E. Hobhouse, who saw the patient with me, agreed with the diagnosis of meningitis. Up to this time the treatment consisted of the administration of liquor ferri perchloridi, plenty of liquid nourishment, antiseptic gargles and sprays to the throat and nose, and careful nursing. Polyvalent antistreptococcic serum in 10 c.c. doses was now injected every six hours. Sir Victor Horsley saw the patient at this stage and agreed with the diagnosis and treatment. He was able to examine the fundi by means of the new Thorner's reflexless ophthalmoscope, an impossible task with any ordinary instrument. He found evidence of early optic neuritis. He gave a very grave prognosis indeed. Twenty-four hours later improvement began to set in. Consciousness was gradually regained, convulsions ceased, all the rigidity disappeared, the temperature fell to normal, and in about four days the patient was quite well, with the exception of very marked muscular weakness and paralysis of bladder and rectum, causing incontinence of fæces and retention of urine. It was necessary to pass a catheter every few hours. These symptoms gradually cleared up, first the rectal paralysis in about one week, then the bladder trouble a little later. The patient was quite convalescent in about six weeks after the onset of his illness.

There are several points of considerable interest in connexion with this case. Firstly, the recovery of a patient with meningitis complicating erysipelas is extremely rare. Sir Victor Horsley has never seen a case, and I am unable to find any record of one. Sir William Gowers[1] states that: "In any form [of meningitis] if the stage of coma has been reached, death is all but certain." I do not think the diagnosis can be questioned in the face of the symptoms, and of the opinions of Dr. Hobhouse and Sir Victor Horsley.

Secondly, did the antistreptococcic serum have any influence on the result? I confess I have always been very sceptical as to the value of the majority of the various sera so much employed in disease. I used it in this case when meningitis supervened only because I thought it wrong to neglect anything that might conceivably aid recovery, not that I had any real hope from it. Certainly the symptoms seemed to improve after the injections, but I am still left in doubt as to whether it was a case of *post* or *propter hoc*. I might mention that Sir William Whitla[2] makes no reference to the serum treatment under "Erysipelas."

Thirdly, this case raises a very important question, and that is the justifiability of intra-nasal operations for trifling defects. I believe that many nasal specialists are apt to advise such procedures as straightening of deflected septa, removal of turbinate bones, &c., far too readily. The symptoms, if any, caused by a slightly deflected septum, or a moderate enlargement of turbinate bones, are very unimportant, often non-existent. The risks of operation are large, much larger than the operators are inclined to recognise, and I am firmly of the opinion that intra-nasal operations are absolutely unjustifiable unless definite and marked symptoms are caused by the condition of the nose. The case recorded above supports this opinion, and in addition I have just seen a girl of 13 who nearly bled to death after the removal of turbinate bones by a well-known London specialist, the operation being performed under ideal conditions in a nursing home. I know this view is held by men of considerable experience in this town, who have come across many cases in which the patient has been very ill and run considerable danger to life after intra-nasal operations. One of the risks which it would be well for operators to recognise more fully is that run by allowing patients to be up and out travelling directly the operation is performed. The danger of sepsis is great. There is a raw surface in the nose over which air laden with micro-organisms is continually being drawn, and in cabs, railway carriages, &c., there must be great probability of pathogenic germs being present and infecting the wound.

Hove, Brighton.

[1] Diseases of the Nervous System.
[2] Practice of Medicine, 1908.

SOME CLINICAL OBSERVATIONS UPON

SEPTIC INFECTIONS OF THE HANDS AND FINGERS.

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THE hand is probably as commonly infected by pyogenic organisms as any other part of the body. The result of septic infection may prove so disastrous to its mechanism that the ability of its possessor to follow his avocation may be very seriously impaired and in some cases absolutely denied to him. The realisation of these facts has prompted the recording of some personal observations made upon 511 consecutive cases of septic infections of the hand and fingers which applied for treatment, and were operated upon at St. Mary's Hospital. No exhaustive study has been made of the different methods of treatment which have been advocated, nor of the modes of spread of infection in the hand. This has been very thoroughly done in the papers published by Kanavel.[1] Some conception has been gained, however, of the frequency of infection of the different structures in the hand and of the commoner results of it, whilst certain ideas have been formulated as to the best methods of applying well-established surgical principles.

For clinical purposes it is convenient to separate the infections into: A, Those which involve the fingers or thumb distal to their webs, and B, those which affect the hand between the level of the wrist-joint and the level of the webs of the fingers.

A. *Affections of the Fingers.*

The pus which results may be (1) subcuticular or subungual; (2) subcutaneous; (3) thecal; and (4) subperiosteal.

Subcuticular whitlows present no difficulties in treatment, and have only been included in this series if they were accompanied by infection of deeper parts. In the treatment of subungual panaritia it has been found best to remove the whole of the nail as soon as there is any pus at all between the nail and its bed. It is only by such immediate measures that we can be certain of avoiding marked deformity of the nail which subsequently grows. Removal of a portion of the nail when the pus is limited to one lateral half is unsatisfactory. Granulations grow up from the nail bed along the cut edge of the segment of nail which has been left, and help to lock up pus under this portion, with the result that frequently in the end the remnant of nail has to be removed, whilst a certain preventable destruction of the nail-bed may have occurred in the interval.

Subcutaneous whitlows are the commonest whitlows met with in the fingers—much commoner than thecal whitlows. The tendon sheaths have been observed to become infected by extension from the subcutaneous tissue of the finger where resort to the knife was refrained from. It appears probable that primary infection of synovial sheaths is uncommon, and the pain of the inflammation in the more superficial structures drives the patient to the surgeon before extension to the tendon sheaths has taken place. Incision in such cases, if sufficiently free, almost invariably prevents them becoming involved, provided the patient can get plenty of nourishing food and can live under hygienic conditions. No one can for long treat such suppurative conditions as are met with in hospital clinics without being profoundly impressed by the powerful influence which proper feeding exerts upon the defensive mechanisms of the body. A large percentage of the cases which get worse in spite of treatment, hesitate in the course to recovery, or relapse, are found, on investigation, to be unable to obtain a sufficient supply of good food, and to live under conditions of overcrowding or other unfavourable hygienic circumstances. Their rapid march to recovery on a "feeding up" diet in hospital amply testifies to the same fact. Other of these cases are the subjects of some constitutional disease. Diabetes is well known to

[1] Allen B. Kanavel: Surgery, Gynæcology, and Obstetrics, September, 1905; November, 1907; January and February, 1909.

predispose to septic infection, but chronic Bright's disease also interferes with defensive and reparative work.

Infection of the tendon sheaths can usually be easily diagnosed before incision. In the case of the subcutaneous whitlow flexion and extension, to some extent at least, are usually possible without great pain. In a thecal panaritium there are extreme tenderness and pain, often localised to one point, and any attempt at extension or flexion of the finger markedly aggravates the suffering. The finger is held rigidly flexed. The synovial sheaths in connexion with the tendons of the little finger and the thumb extend upwards and are continuous with the great anterior carpal synovial sac. Yet involvement of this sac in a thecal panaritium of the thumb or little finger is not common. It only occurred once in this series, and in that case it was of a mild type. When extension takes place to the synovial sheath of a finger the infection is at first confined to one part of the membrane. Round this focus fibrinous adhesions form between the synovial sheath and the tendon, which tend to limit the infection in much the same way as inflammation in the peritoneal cavity becomes circumscribed. This accounts for the *localised* tenderness in a thecal panaritium. If incision is made early extension to the rest of the sheath is prevented. It is not safe, however, to make only a local incision, for with the relief of tension the tendon may be moved in its sheath, and by this means spread the infection to its hitherto unaffected parts. In two cases in this series a stiff finger followed an attempt by limited incisions to preserve the fibrous sheaths where they are opposite the joints of the fingers, a procedure recommended by Kanavel. The infection spread, and in each the flexor tendons sloughed. After a free incision the results are good, and in most cases a moveable finger is obtained. There need be no hesitation in making the incision long and in making it deep.

The subperiosteal whitlow is most commonly seen in the case of the terminal phalanges. Necrosis in the terminal phalanx is common; necrosis in the case of the other bones, unless it occurs as a complication of septic arthritis, when it involves the ends of the bones, is quite rare. If a portion of the terminal phalanx is necrosed a persistent sinus remains, until the sequestrum separates off, and is removed or spontaneously extruded. If the sequestrum has not come away in eight weeks from the time of infection it is advisable to operate. Unless there is a large sinus on the anterior aspect of the terminal phalanx, the sensitive and useful pulp of the finger should be preserved by making antero-posterior flaps, so as to thoroughly lay bare either the anterior or posterior aspect of the terminal bone. A scar in the pulp of the finger is thus avoided. The sequestrum may then be easily separated, or if the whole phalanx be discovered dead it must be removed. This is a very satisfactory procedure, although the pulp subsequently shrinks, and the nail comes to grow over the end of the finger somewhat. In one case, a pianist, the whole of the terminal phalanx, except the extreme base and the articular cartilage, was found to be dead and separated. It was removed. Some movement was retained in the end of the finger, and she was able to play with some skill. Usually, however, the end of the finger is stiff, though it becomes sclerosed and feels almost bony. In such cases it seems that the periosteum of the phalanx on the side opposite the seat of infection has escaped. The operation should always be done with an elastic ligature around the base of the finger. A local anæsthetic has not been definitely proved to delay healing, but general narcosis is preferred.

Another result of deep infections of the finger is a septic arthritis of one of the joints. Very frequently, because the joint involvement in not recognised, the capsule is allowed to perforate spontaneously, instead of being surgically opened. By this time, too, the articular cartilage has usually been irreparably destroyed. The finger, however, frequently heals up, and there is left an abnormally mobile grating joint. With the lapse of time the joint in most cases becomes absolutely stiff. Excision of such joints often leads to no better results, for fibrous ankylosis and adhesion of the tendons produce a stiff finger. In one case such a joint (the metacarpo-phalangeal joint of the little finger) after complete healing of the wound for three weeks, became inflamed again, and an abscess formed round it. An incision was made along the ulnar margin of the joint towards the dorsal surface. The tendons were displaced. The proximal end of the basal phalanx was found to be necrotic and was sawn off, leaving a surface of healthy bone. The cartilage of the head of the metacarpal was almost completely eroded away. The necrotic area was thoroughly scraped. Sterilised vaseline was then interposed between the ends of the bones and the tissues sewn around them. The wound was closed without drainage. A small sinus formed, but soon healed, and a moveable joint resulted.

B. *Affections of the Hand.*

In the 511 cases operated upon there were 60 cases in which the infection was situated in the hand between the level of the wrist-joint and the webs of the fingers. Only four of these were primarily infected on the dorsum. Of the 56 cases infected on the palmar surface, in 20—i.e., 36 per cent.—the infection was localised in the first interosseous interval or the thenar eminence. This can be explained by the fact, as Sappey[2] has shown, that the lymph from a large area of the central part of the palm is conveyed by a collecting vessel across the first interosseous space, where it passes on to the back of the hand and runs upwards on the dorsum. These thenar abscesses are very common. The pus has little tendency to spread inwards to the central compartment of the palm, but spreads with great ease downwards under the lower border of the adductor transversus pollicis, and between the first and second metacarpal bones, to reach the dorsal aspect of the first interosseous space. A simple incision which runs parallel to the direction of the second metacarpal bone, but nearer the thumb than the index finger, so as to avoid the superficialis volæ, is usually sufficient to cure these thenar abscesses. The incision may often be prolonged with advantage on to the dorsum.

Abscess in the central compartment of the palm is uncommon (only four cases in the above series), and this, perhaps, is to be attributed to the fact that the strong central portion of the palmar fascia offers great resistance to the passage of the pus backwards. In the lower part of the palm, however, between the digitations of the palmar fascia which go to the fingers infection can easily pass backwards between the heads of the metacarpals and along the lumbrical muscles to the back of the hand. This is the usual manner in which infection spreads to the dorsum of the hand. When the central compartment of the palm is infected the interossei and the fascia covering them seem to offer much resistance to the backward passage of pus.

In making incisions into the palm the positions of the palmar arches and digital arteries must be borne in mind. General anæsthesia is employed and a tourniquet applied to the upper arm. This is very important, for with a bloodless field one can cut through the palmar fascia and expose important structures, a much freer opening into the abscess cavity by this means becoming possible. One cannot mark out with absolute precision on the surface sites for incision so that no damage may be done to palmar vessels or nerves. It is never necessary, bearing in mind the path of spread to the dorsum, to insert a tube between the metacarpals providing through drainage. The primary incision should be carried downwards towards the web, and a separate dorsal incision made if necessary. The operation should be done speedily. It seems unwise to deprive already infected and damaged tissues of their blood-supply for more than a short time.

The complications, axillary adenitis or lymphangitis, severe enough to necessitate incisions, are rare if the primary infections are adequately treated in an early stage. In only two of the 511 cases did axillary adenitis proceed as far as pus formation. There were two cases of abscesses in the forearm. They occurred in weakly children in a neglected condition. Amputation of a finger was never resorted to.

St. Mary's Hospital, W.

[2] Cunéo and Poirier: Lymphatics, translated by Cecil Leaf.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. Edward Snape Grigson King Edward VII. Hospital Fund will receive £2000.—The late Mr. A. Hogg Nasmyth bequeathed £1000 each to the Edinburgh Royal Infirmary and the Dunfermline and West Fife Hospital; £500 each to the Edinburgh Royal Blind Asylum, the Edinburgh Deaf and Dumb Benevolent Society, the Royal Edinburgh Hospital for Sick Children, the Royal Edinburgh Hospital for Incurables (the Longmore Hospital), and the National Society for the Prevention of Cruelty to Children.

A CASE OF CONGENITAL ATRESIA OF THE DUODENUM.

BY W. FRANCIS ROE, L.R.C.S.I., L.M., L.R.C.P.I., L.M.,

AND

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Clinical History (W. F. R.).—On Wednesday night, Nov. 4th, 1908, I was sent for to attend a married woman, aged 36 years, in her third confinement. On my arrival I found that she had given birth to an apparently healthy and well-formed male child. She had had an easy labour, and did not trouble to send for the nurse till about an hour before the baby was born. On the occasion of my daily visits no complaint was made to me, either by the mother or the nurse, as to anything abnormal about the baby, except that he did not seem very keen on taking the breast. On Sunday (the 8th) the mother told me that the baby brought up his milk and some "brown stuff." The boy looked quite happy, and I did not take much notice of the fact that he had brought up his milk, nor did I see any of the "brown stuff" which was alleged to have been vomited. The father came to me on Monday morning at 9 20, and told me that the child had suddedly died half an hour before. During the previous day, after my visit, and through the night the child had vomited a considerable quantity of brown material, and continued to pass black motions from the bowel. On going to the house I found the child dead, and its face and clothes stained with a brown fluid which had apparently come from the mouth. The napkin contained meconium. As I was at a loss to know what to certify as the cause of death I obtained permission to perform a necropsy.

The child was well developed and showed no external signs of disease except that the abdomen was rather distended and hard. The lungs and heart were normal. Upon opening the abdomen a distended stomach was found to be filling up that cavity; it had apparently an hour-glass constriction towards the pyloric end. The stomach contents consisted of a quantity of "brownish black" fluid material. The intestines had not been distended. The other organs were normal.

Specimen (E. H. S.).—The specimen consists of the stomach and duodenum of an infant; it was stuffed with cotton wool, and hardened in as near the natural shape of the viscus as could be made out. At first sight there appears to be a large stomach with a deep constriction at about the junction of the proximal two-thirds with the distal third, the œsophagus entering the organ in its natural position and at the other end a narrow tube leaving the middle of a blind and bulbous extremity. On further examination, however, the constricted portion is seen to be the pylorus, a well-marked muscular ring about half an inch wide representing the pyloric sphincter. The dilated part distal to the pylorus is the duodenum, which gradually expands to a tube 1½ in. in diameter and then rather abruptly terminates. The lumen of the duodenum is completely lost at this point, and no dimple or pit can be made out in the mucous membrane. Projecting from the outside of this blind end is a narrow tube with a thin wall, and a lumen about ¼ in. in diameter. The mucous membrane of the tube is irregularly folded. There is a very slight constriction externally at the junction of the two parts. The appearance presented by the narrow tube projecting from the dilated proximal part of the duodenum somewhat resembles that of a vermiform appendix arising from the cæcum. The dilated duodenum is covered with peritoneum near the pylorus only. The lining membrane is quite smooth; this is in marked contrast with the lining membrane of the stomach, which is thick and thrown into well-marked folds. A narrow bile-stained duct enters the wall of the duodenum behind just at the commencement of the narrow part. A bristle can be inserted into the tube, but cannot be made to enter the lumen of the bowel. This is evidently the common bile-duct. A passage must have existed during life, because meconium was present in the intestines, but owing to shrinkage it has become difficult to demonstrate. A second minute tube by the side of the first one apparently represents the pancreatic duct. A bristle can only just be inserted into this opening and cannot be passed into the duodenum.

Just inside the pylorus there is a narrow, deep, and slit-like pit about 5/16 in. long by 2/16 in. deep; it is placed at right angles to the long axis of the pylorus, and separated from the beginning of the duodenum by a bridge of mucous membrane about 1/8 in. wide. A piece has been cut out, and the mucous membrane can be seen dipping down into the pit and covering its depth. The sectional view of the depression reminds one of a similar section through the laryngeal ventricle. The pyloric sphincter is about 1/8 in. thick; it ends abruptly at the duodenal junction, but fades off gradually towards the cardiac end of the stomach. The stomach is much enlarged and its walls hypertrophied. Measurements along the curvatures work out as follows: lesser curvature, 2½ in. from œsophagus to pylorus; greater curvature, 7 in.; depth from lesser to greater curvature, 1¾ in. The measurements of the dilated duodenum are: 2 in. along the upper border from pylorus to the constriction, and 3½ in. along the lower border between the same points.

Microscopic examination.—(*a*) *Pylorus and adjoining duodenum.*—Well-marked bundles of unstriped muscle with a lining of ordinary mucous membrane. There are numerous scattered large glands beneath the muscularis mucosa of the duodenum (Brunner's glands). The cells of the glands are tall and columnar in shape.

(*b*) *Pouch in pylorus.*—The mucous membrane on either side of the depression is thick and well formed. At the bottom of the pit the orifice of a large branched duct is seen lined by columnar cells. Around this duct there are large irregular collections of gland tissue; some of the groups are well defined and are oval and round in outline; on either side isolated glands are seen penetrating the muscular coat. The cells are columnar in shape, rather short, and contain large nuclei. They are shorter than the cells of the glands seen in the first section. Large numbers of small round cells are present in and around the groups of glands. The mass of glands appears to have penetrated the whole thickness of the muscular wall.

An interesting problem is presented by these glands. Are they Brunner's glands or an accessory pancreas? In favour of the first is the position of the glands; in favour of the second are the fact that they form a definite collection of lobules around a central duct and the gland cells are smaller than those seen in the first specimen, which are undoubtedly Brunner's glands.

The above are the facts; any opinion one may feel inclined to form one way or the other is purely speculative. Developmentally they are both offshoots from the intestinal glands. Brunner's glands stop short and scatter themselves beneath the muscularis mucosa. The pancreatic glands go right through and form a mass outside the wall of the intestine. The above collection may represent an exaggerated collection of Brunner's glands or a minute pancreas.

The specimen is a most interesting one and is rare. Professor Arthur Keith has investigated the literature of this malformation, and has succeeded in finding seven other specimens. He quotes Bland-Sutton's opinion that the occlusion is probably associated with the outgrowth of the embryonal cells of the liver and the pancreas. It occurs at the junction of the two morphological parts of the alimentary canal—the fore and mid gut. Forssner finds that the Vaterian segment of the duodenum is occluded by the proliferation of its epithelial lining during the greater part of the second month of development. The epithelial plug, failing to break down as development proceeds, leads to an occlusion of the bowel at that point. The specimen is now preserved in the museum of the Royal College of Surgeons of England.

THE "I.K." TREATMENT FOR TUBERCULOSIS.—In an annotation published in THE LANCET of Sept 16th, dealing with this subject, we omitted to mention that Dr. Carl Spengler's book is published by the Verlag von H Erfurt, Davos, Switzerland, at the price of 12 marks. Its full title is, "Carl Spengler Tuberkulose- und Syphilis-Arbeiten (1890–1911). Herausgegeben von seinen Schülern und Freunden." Pp. 505.

Reviews and Notices of Books.

In and Out of Parliament: Reminiscences of a Varied Life. By the Right Hon. ROBERT FARQUHARSON, P.C., M.D., LL.D. London: Williams and Norgate. 1911. Pp. 338. Price 12*s.* 6*d.* net.

Dr. Farquharson has had a sufficiently varied career to afford ample opportunities for a many-sided view of life. This book discloses a sense of happiness bubbling over, an almost juvenile naïveté, and considerable sense of humour; moreover, it is written with, at times, unconventional frankness as to people and things, while treating the cherished convictions and opinions of many in a manner which, were it not for the obvious ingenuousness of the writer, would run perilously near arousing resentment.

The book is divided into two parts, in the first of which Dr. Farquharson describes his childhood and early education, and gives charming glimpses of Edinburgh life, especially university life, in the middle of the last century, with recollections of Goodsir, "Johnnie" Struthers, Gregory, Wilkinson, "Woody fibre" Balfour, Edward Forbes, Sir J. Y. Simpson, Bennett, John Brown, Syme, "Dismal Jimmy" Spence, Ghiene, Matthews Duncan, and others on the medical side; and Blackie, Aytoun, Chalmers, Lord Cockburn, Alexander Smith, and others on the academic side. "The physiology of those days," says Dr. Farquharson, "was not, as it has now become, a kind of blend of mathematical chemistry and mechanical engineering." The author tried his hand in art. To a description of his "hopeless struggle in pencil, chalk, and water colours" he adds a few sane reflections as follows: "But at the same time, I would advise everyone to learn to draw even a very little; for it steadies the hand and clears the vision, and enables us to look at nature with more pleasure, and with an observant and appreciative eye—and best of all, it helps us to enjoy pictures intelligently, because we can understand what artists are trying to do, what their aims are, and what their difficulties." Dr. Farquharson's life as an army surgeon, first in the Royal Artillery, and subsequently in the Coldstream Guards, and his career in civil practice, as medical officer to Rugby School under Dr. Temple, and subsequently as a London physician and lecturer at St. Mary's, afford ample opportunities for the introduction of piquant incidents and shrewd reflections. For instance, he relates how at Rugby, finding the well-known cricketer, Yardley, seedy, he was unable offhand to give a dogmatic opinion as to the nature of the illness. "On which," he says, "I was summoned to Jove's awful presence, and the head master, in his most abrupt and grating tones, snapped out: 'You damage yourself by want of decision.'" This represents only too well the mental attitude of a certain portion of the public, particularly of those who are, or at some time have been, men in authority, an attitude which puts an unfortunate premium upon ignorant dogmatism. Concerning this period of his life the work abounds in reminiscences of Sir William Gull, Sir William Fergusson, Sir William Jenner, Sir Andrew Clark, Sir Spencer Wells, Mr. Ernest Hart, and other well-known personages in medicine, not to mention many dramatic, musical, and other celebrities. In the course of his army career Dr. Farquharson was stationed in Dublin, and he speaks of the wonderful amount of very high-class work turned out of the Dublin hospitals and medical schools.

In 1878 Dr. Farquharson succeeded his father as the Laird of Finzean, Aberdeenshire. "The succession to a property in the north," he says, "is rather a serious matter. To begin with, the executors grab the first year's income, so that during that period the heir, perhaps to a large income, has practically to live on nothing. Then the younger children, under the law of entail, are officially provided for, by intercepting, according to numbers, two or three years of gross rental; and finally comes the succession duty, which, though then mild compared to Harcourt's death duties, meant a considerable money payment at a most inconvenient time." The later chapters of the first part are occupied with shrewd observations of men and things as they appeared to the author at Rugby, abroad, and in London, to which are added some interesting notes on Aberdeenshire people and the Free Church.

Part II. is concerned with Dr. Farquharson's Parliamentary career as Liberal M.P. for West Aberdeenshire, which covered the period between 1880 and his retirement in 1906. He was a keen admirer and a loyal follower of Gladstone, whom, nevertheless, he seems to have regarded with some awe, for he contrasts the latter's lofty and abstracted demeanour with "the gracious smile and pleasant words of friendship" of Disraeli. He describes with considerable humour the process of electioneering and the details of life about the House; but in a chapter on Parliamentary scenes the curtain is lifted on certain phases of what may be called the business of politics that hardly tend to inspire respect for the political career or politicians generally. It is only too evident that the quest and retention of power bulks altogether too large among politicians of all kinds in proportion to the conscientious sense of responsibility for the welfare of the country as a whole. There are many interesting anecdotes and character impressions in the chapter on the author's political contemporaries. There is little of medical interest in this part of the book, and we look in vain for any review of the measures of medical concern that engaged the attention of Parliament while the author sat there to lend the weight of professional opinion to the debate, which, we believe, it is generally conceded that he did in a creditable manner. In the chapter on health and teetotalism he refers to golf as follows: "I envy those who have fallen a victim to its fascination, for to me it is the most irritating and even exasperating of all sports; and I was very glad when THE LANCET uttered some words of much needed warning to over-tired and worried people who tire and worry themselves a great deal more in vain efforts to acquire even a moderate proficiency in a game of such elusive and uncertain quality. ..." He has a few words on over-dining, over-smoking, the "jaded Londoner," and the use of alcoholic beverages.

Dr. Farquharson is no devotee of intemperate temperance. Speaking of those who tell us "that every drop of drink is a slow poison" he says: "If any of these well-intentioned but mischievous folk—for whom I cannot withhold a kind of sneaking respect—ask my reasons for taking a cheerful glass my answer always is the same: 'I drink because I like it'; and then there is not another word to be said." It is to be feared that this would only change the field of debate to "a hundred and one reasons why you ought not to like it." There are several excellent photographs in the book, most of them portraits of the author; but here his sense of humour precludes the appearance of egotism, in that five of them are reproductions of clever caricatures by Harry Furniss, Leslie Ward, and E. T. Reed, all equally redolent of kindly raillery.

Those readers who do not know Dr. Farquharson will surely find much to interest and amuse them in this book; while those who do know him will find the fount of their affectionate regard well up.

Klinische Pathologie des Blutes nebst einer Methodik der Blutuntersuchungen und Spezieller Pathologie und Therapie der Blutkrankheiten. Von Dr. ERNST GRAWITZ, Professor an der Universität zu Berlin. Mit 45 Figuren im Text, 6 Tafeln in Farbendruck und einer Tafel mit mikrophotogrammen. Vierte vollständig neu bearbeitete und vermehrte Auflage. Leipzig: Georg Thieme. 1911. Pp. 1011.

IN reviewing this truly colossal work on a subject of which but a few years ago all that was known could have been put into a few pages, we may well start by expressing our regret at the death of its author, an extraordinary professor of medicine in the University of Berlin and director of the medical department of the Charlottenburg Hospital (as chronicled in THE LANCET of August 5th). The book is dedicated to the author's brother, Professor Paul Grawitz, the pathologist of Greifswald.

In the whole story of the doctrine of the origin of the blood cells, the author thinks the most important point is that their origin is not confined exclusively to red marrow, spleen, and the lymphatic system, but that the white cells especially have a nearly ubiquitous origin in all tissues of the body under different forms of stimuli, so that, as far as leucopoesis is concerned, we have returned to views enunciated independently by Paul Grawitz and Stricker from 20 to 30 years ago.

Part I. deals with the methods of investigating the blood—how to obtain blood for histological and bacteriological purposes; and a full account is also given of physico-chemical methods. The whole occupies 79 pages.

Part II., on the physiology of the blood (pp. 79–304), deals successively with physiological changes due to age, sex, pregnancy, period of day and year. Individual differences, the total quantity of blood and its viscosity, changes produced by vaso-motor influences, blood coagulation and its relation to hæmophilia are all considered. Then follows a description of the formation of red blood corpuscles during fœtal and extra-uterine life, with a very full account of the red cells of human blood, under such heads as their form, functions, structure, pathology, and hæmoglobin content. Megalocytes, microcytes, and poikilocytes, the different relations to staining reagents, and how long they live and how they disappear in the circulation, come in next for notice. To the leucocytes, apart from their sources, about 50 pages are devoted, while leucocytosis occupies about 30 pages, and is dealt with in its physiological forms—e.g., the digestive and myogenic—as well as those forms occurring during and after pregnancy, and in the new-born and at death. The pathological forms are classified as post-hæmorrhagic, inflammatory, cachectic, and toxic. A short chapter on the blood platelets follows. These, the author asserts, arise chiefly, but not exclusively, from the nuclei both of the red and the white corpuscles.

Part III. (pp. 305–696) deals with anæmic conditions, under such headings as anæmias in general, transfusion of blood, pernicious anæmia, chlorosis, leukæmia, and pseudo-leukæmia. This is a most comprehensive and detailed survey.

Part IV. occupies about 300 pages and deals with clinical serology (part of this is written by Dr. Werner Schultz), precipitins, hæmolysins, agglutinins, the side-chain theory, opsonins, anaphylaxy, anti-ferments, and kindred subjects. A very interesting chapter on blood poisons follows. The blood in constitutional diseases, and diseases of the digestive, circulatory, respiratory, nervous, and renal systems, is successively dealt with. Infectious diseases and animal parasites come next, and the end is reached with a short discourse on carcinoma and other malignant new formations.

We have contented ourselves with giving the scope of the author's work, which is truly comprehensive. It is at once a quarry and a treasury, and when we add that there is an abundance of references to the literature of the subject the work cannot fail to prove to be of great utility to, and a comprehensive source of reference for, the physiologist, pathologist, and clinician.

Methodik der Klinischen Blutuntersuchungen. Von Professor Dr. ERNST GRAWITZ zu Berlin. Mit 35 Figuren im Text und 6 Tafeln in Farbendruck. Fourth edition. Leipzig: Georg Thieme. 1911. Pp. 79.

THIS is a reprint of the first 79 pages of the author's large work, and the plates are the same. On p. 77, when speaking of iodophil substances in leucocytes, a reference is made to the chapter on leucocytes, but the larger work itself is not mentioned by name. The book is an excellent epitome of the subjects with which it deals.

The Grouse in Health and Disease; being the Final Report of the Committee of Inquiry on Grouse Disease. Two volumes, pp. 512, 151, xxiii. London: Smith, Elder, and Co. 1911. Price £2 2*s.* net.

THE Final Report of the Committee of Inquiry on Grouse Disease, which has been lately issued, will be found not only of great interest to sportsmen, but also a most valuable book of reference to all scientific men; for while it deals with questions relating to grouse preservation and the management of moors, it also shows the vast amount of scientific research that has been employed in working out the pathology of the diseases to which grouse are most subject, and in ascertaining the pathogenic properties of the numerous parasites which infest them both externally and internally, as well as the life-history of these parasites.

In the second part of the first volume, which has for its sub-title "The Grouse in Disease," the objects of the committee are set forth by Lord Lovat, the chairman of the committee, under six headings, and these define the task which the committee set itself to accomplish. Lord Lovat's headings, or questions of reference, may be briefly summarised as follows: (1) Whether the sickness described universally as "grouse disease" is a single disease with individual characters peculiar to it alone; (2) whether a distinction can be discovered between recorded outbreaks to justify the opinion that two distinct forms of disease are confused under one term; (3) in the event of finding in favour of the belief in two or more distinct epidemic diseases, what are their causes and effects, and by what titles and characteristics are they to be known; (4) in the other event of finding in favour of the belief that only one form of epidemic disease exists, is Professor Klein's view right, that the only serious disorder among grouse is caused by a bacillus of the B. coli group producing lesions of an acute pneumonia in the lungs, with the characters of an acute infectious epidemic disease, or (5) is Dr. Cobbold's view right, that the outbreaks of disease among grouse have been caused by a nematode worm, Trichostrongylus pergracilis, causing certain lesions in the cæca leading to extreme emaciation? (6) is there any other form of "grouse disease" that has been hitherto overlooked?

All these questions are carefully discussed in the light of research work carried out on the moor, in the laboratory, and on the experimental area in Surrey, and each one is unhesitatingly answered by the committee. After remarking that, with the exceptions of Dr. Cobbold and Professor Klein, none of the older writers had made a careful study of "grouse disease," but had simply given their opinions, "hopelessly mixing up observed facts with unsound theories, and primary with predisposing causes," the committee gives the conclusions at which it has arrived in the shape of the answers to the six questions formulated above. The answers may be briefly summed up as follows: (1) The

sickness which in the past has caused "grouse disease" among adult birds is a single disease with clearly defined characteristics of its own; (2) and (3) it follows that if the two forms of "grouse disease" hitherto described as distinct diseases are one and the same there is no need to differentiate between them; (4) that "grouse disease" is not due to Klein's bacillus; (5) that adult "grouse disease" is due to Dr. Cobbold's Trichostrongylus in large numbers in the cæca; and (6) that another form of "grouse disease" exists which has hitherto escaped notice; this is caused by the presence of Eimeria (coccidium) avium in the alimentary tract and is called in the report coccidiosis, but it is fatal only to chicks, whereas the records of "grouse disease" refer only to mortality among adult grouse. Here we have the finding of the committee that grouse disease is caused by Cobbold's strongyle, and the remainder of this part of the report shows how this was scientifically proved.

An introduction by Lord Lovat shows how the committee originated, and it should be remembered that though the committee is described as a Departmental Committee of the Board of Agriculture, all the expenses have been met by private subscription, and no grant of public money has been made towards this valuable work. The life-history of the grouse is dealt with by Mr. A. S. Leslie, who has acted in an indefatigable manner as secretary to the committee. Dr. Wilson, at present with Captain Scott on the Antarctic Expedition, describes the plumage changes of the red grouse, also giving beautiful coloured illustrations of these changes. The food of the grouse is next considered, with tables showing the nature of the food taken and the weight of food in the crop at different hours of the day; the insect food of the grouse is described by Mr. P. H. Grimshaw, who in Appendix F of the second volume gives a full account of all the insects found in the crops of grouse examined by him. Mr. Leslie deals with the water-supply. The very important subject of grit is considered by Mr. H. Hammond Smith and Mr. R. H. Rastall, who worked out their conclusions by making a collection of grits found in the gizzards of all game birds, when it was seen that all birds do better on quartz grit, and that it was essential to grouse from the very earliest age; it was found in the gizzard of a chick not 48 hours old. The physiology and anatomy of the grouse are well dealt with by Dr. Wilson, and here again the coloured illustrations are remarkably good.

The chapter on grouse disease discusses the divergent views obtaining on the subject before the work of this committee. The work done by Dr. Seligmann in the early days of the committee enabled them to decide not to proceed further with Professor Klein's theory, but to work at the parasites of the grouse as potential disease carriers or producers; for, as Dr. Wilson points out, during the whole period of the inquiry no birds have been found dead without loss of weight. In this part of the report we have most interesting accounts of the nematode and cestode worms found in grouse, by Dr. E. A. Shipley, while Dr. Leiper describes the development of the Trichostrongylus pergracilis and the manner in which it obtains entrance into the alimentary tract of the grouse, a chapter that deserves careful study. The work by Dr. H. B. Fantham on the Eimeria (coccidium) avium is exceedingly interesting; the development of this micro-organism, its life-history and methods of reproduction, are minutely described, and the chapter is well illustrated, constituting a fine piece of original work. Another most interesting chapter is by Dr. L. Cobbett and Dr. Graham Smith, on the pathology of grouse disease, giving an account of their experiments and investigations.

The remainder of the report is chiefly concerned with the management of moors, such as careful scientific burning and draining, by Lord Lovat, and the important question of stock. Mr. Hammond Smith gives an account of grouse in captivity, and describes the experimental area at Frimley in Surrey, where grouse were kept for five years, and though at first there were many failures, yet in 1910 41 grouse chicks were hatched from 46 eggs. Mr. Grimshaw in this part of the work has an excellent paper on the heather beetle and its ravages.

The report is a model of what such work should be, and is a good example of the way in which scientific medicine is now bound up with every phase of social life.

Treatment of the Diseases of Children. By CHARLES GILMORE KERLEY, M.D., Professor of Diseases of Children in the New York Polyclinic Medical School. Second edition, revised. London and Philadelphia: W. B. Saunders Company. Pp. 629. Price 21*s*.

THIS volume is dedicated to the author's pupils at the New York Polyclinic Medical School and Hospital, and as such it is not intended as a text-book for unqualified students or as a work of reference for specialists in pædiatrics; this is Dr. Kerley's apology for the particular form which his useful book takes. The work is strongly impressed with the personal element, a feature which will make it all the more acceptable to those who have benefited by the author's oral teaching.

There is very little to criticise, for the author seldom leaves the beaten tract of pædiatrics except in matters of treatment, and as regards therapeusis generally it may be said that each man must be a law unto himself, and he must be guided by his own experience. If we do not agree with many of the methods recommended by Dr. Kerley, it by no means follows that, under different climatic conditions and in different hands, the procedures he recommends may not be followed by the best possible results.

His advice in cases of pyloric stenosis to resort to early operative interference seems to us, however, to strain somewhat severely the charitable view that we are disposed to take of his departures from recognised practice. We are also inclined to dispute the statement that boiled milk is less digestible than unboiled milk, owing to precipitation of lime salts; under ordinary conditions this is one of the pre-stages of gastric digestion. His views on the capacity of the young infant to digest starch are somewhat circumscribed, and his experiments to elucidate the capacity are faulty. Boiled starch may undergo fermentation in the alimentary tract, and leave no residuum to react to the von Jaksch iodine test. Moreover, we know, on general principles, that young infants very soon learn to digest any particular variety of food, provided the probationary experiences are adequately graduated. But the general statement that young infants are capable of digesting starch without qualification is distinctly misleading.

Of mucous colitis the author says (p. 218) that this is a rare disease in children. This may be so in America, but in England it is certainly one of the commonest, in both its chronic and its acute forms. For treatment he recommends olive oil injection at bedtime, and if no stool results in the morning he advises a glycerine suppository. He altogether discountenances the use of the irrigator under such conditions. The Plombières method of using the rectal douche does not seem to be known to Dr. Kerley, or at any rate he does not avail himself of its conspicuous advantages in describing the procedure of intestinal lavage. The hypodermic injection of normal saline in urgent cases of collapse does not commend itself to him. He says in cases in which hypodermoclysis—an ugly term, but we use the author's own expression—is most required "the fluid will not be absorbed owing to the lowered vitality of the patient. Those whose

tissues are able to take up the water appear to do well without it."

Taking it all in all, this is a good book for general practitioners; but it is neither inspiring nor altogether convincing. The arrangement of the contents is clear and the printing excellent. Dr. Kerley is undoubtedly at his best when he deals with the general aspects of disease and the hygiene of infancy and early childhood.

La Neurasthénie Rurale. Fréquence, Causes Sociales et Individuelles. Études Psychologiques et Cliniques de la Neurasthénie chez le Paysan Contemporain. By Dr. RAYMOND BELBÈZE. Paris: Vigot Frères. 1911. Pp. 222. Price 3 50 fr.

Dr. Belbèze, practising in a purely rural district in France, finds that no less than 30 per cent. of his patients belong to the neurasthenic class, and has written an interesting little volume on the type of case commonly met with, based on a record of 200 observations. He attributes the great frequency of neurasthenia partly to local circumstances—unsatisfactory conditions of life, depopulation, &c.—and partly also to the "neurastbéniculture" of the day. Consanguinity, inadequacy of nutrition, and intoxications of one kind or another are all stated as factors of considerable importance. Among the symptoms which Dr. Belbèze's patients show he is struck by the constancy of the occurrence of aboulia, of fear, of desire to avoid any sort of responsibility. No one who has had any experience of medical work in remote country districts can have failed to notice how great is the tendency to "rumination" among certain individuals; with little or nothing to interest them beyond the daily round, the common task, they become introspective and almost inevitably hypochondriac. Dr. Belbèze designates this characteristic symptom "phrontidophilia," and considers it of much significance. Bearing, as it does, on problems which meet the country practitioner of to-day in all countries, this little volume will well repay perusal.

Meat and its Inspection: a Practical Guide for Meat Inspectors, Students and Medical Officers of Health. By A. R. LITTLEJOHN, M.R.C.S. Eng., L.R C P. Lond., M.R.C.V.S., D.P.H. R C.P.S. Lond. London: Baillière, Tindall, and Cox. 1911. Pp. 399. Price 10*s.* 6*d.* net.

THE writer of this volume is entitled to speak with authority, as he is both a medical man and a veterinary surgeon; he is also engaged in public health work and bacteriology. The work does not profess to be a text-book of the subject, but is intended as an aid to those who have to deal practically with meat inspection, such as meat inspectors and students for a public health diploma. After an introductory chapter on the methods of slaughtering and dressing carcasses, with a brief *résumé* of the statutory powers of the medical officer and his inspectors, a full description is given of the appearances of the carcasses of healthy animals. The third chapter, on preserved meat, is rather slight, considering the enormous quantity of such food that is consumed at the present day; a fuller description of the different methods of preservation by heat (only one is mentioned) and of the points to be considered in examining tins would have been useful. The various physiological and pathological conditions which make meat unsound are reviewed clearly and fully. Then follows a good account of the parasitic affections of animals used for food; but we do not find any reference to the recent researches of MacFadden and Leiper on onchocerciasis, the condition known as "worm kernels" that has been extensively found in cattle in Australia, the United States, and elsewhere, due to thread-like worms, transmitted through the medium of some biting insect (see THE LANCET, Feb. 4th, 1911, p. 317). The last chapter, from p. 241 to the end of the book, more than a third of the whole, consists of a verbatim transcript of portions of various Public Health Acts, by-laws, and regulations, which are usefully brought together, but can hardly be credited to the author. The illustrations of pathological conditions are excellent; most of them are drawn by the author himself, and they have been very well reproduced.

Nephrocoloptosis: a Description of the Nephrocolic Ligament and its Action in the Causation of Nephroptosis, with the Technic of the Operation of Nephrocolopexy, in which the Nephrocolic Ligament is used to Immobilise both Kidney and Bowel. By H W. LONGYEAR, M.D., Professor of Gynæcology and Abdominal Surgery, Detroit Post-Graduate Medical School. With 88 special illustrations and a coloured frontispiece. London: George Keener and Co. Pp. 251. Price 12*s.* 6*d.* net.

THE title of this work is so full that it goes far to explain the contents of the book. The author holds that nephroptosis cannot occur without a coloptosis—that is, a settling down of the colon. The kidney and the colon are, he claims, linked firmly together by the nephrocolic ligament, which he describes as an irregularly shaped aggregation of fasciculi, passing from the perirenal fascia, or Gerota's capsule, to the posterior wall of the ascending or descending colon. This band is called by some Longyear's ligament. The factors necessary for nephroptosis are, in the opinion of the author, (1) a weak or absent hepatocolic ligament; (2) a loose attachment of the kidney at its hilum and to Gerota's capsule; (3) a strong and short nephrocolic ligament; and (4) prolapse of the cæcum and of the ascending colon or of the descending colon. Dr. Longyear's method of operating consists in anchoring the nephrocolic ligament to the perinephric fascia and to the transversalis aponeurosis. Notes of 56 cases are given in which this operation has been performed; there have been no deaths; 35 cases were entirely relieved; 16 were partially relieved, and in 5 cases no report was obtained. In the book the reader will find a not immoderate claim for the benefits likely to follow the operation which the author has devised.

Clinical Lectures on the Acute Abdomen. By WILLIAM HENRY BATTLE, F.R.C.S. Eng., Surgeon to St. Thomas's Hospital and Joint Lecturer on Systematic Surgery in the Medical School, &c. London: Constable and Co., Limited. 1911. Pp. 107. Price 4*s* net.

THE importance of the early recognition of acute abdominal conditions is equalled only by the difficulty which is often encountered in their diagnosis. With regard to treatment, at one time all the surgeon could do was to follow acute abdominal cases to the necropsy room, but now the results are very different. Still, the medical practitioner, called suddenly to a patient with a distended and painful abdomen, often feels entirely at a loss how to deal with the case. How can he tell what is going on within the abdomen? Does it need immediate operation or may delay be justifiable? It is only by studying the subject carefully beforehand that he will be in a position to deal with such an emergency.

Mr. Battle recently delivered some clinical lectures at St. Thomas's Hospital on what he termed "the acute abdomen." We published these lectures in our columns[1] and are glad to see them in book form. They deal with the following subjects: The influence of the appendix vermiformis and its diseases on the production of the acute abdomen; the treatment of acute appendicitis with peritonitis; pathological perforations of the digestive tract; acute intestinal obstruction; the rarer causes of the acute abdomen; the acute abdomen due

[1] THE LANCET, Jan. 27th (p. 201), Feb. 3rd (p 273), and Feb. 17th (p. 429), 1906.

to disease of the uterus and its appendages; and, lastly, some neuroses which may cause symptoms of urgency. Mr. Battle is emphatic in speaking of the need for immediate operation in most of the cases of acute abdomen, and he cites individual instances which show the benefits resulting from timely operative interference and the harm that may follow delay. It is interesting to note that he employs silk for all abdominal sutures and ligatures, and holds that catgut should not be used in acute abdominal cases, as it is apt to soften and to yield too quickly should any strain be placed on it.

The style of the book is very readable and the lessons eminently practical.

LIBRARY TABLE.

Modern Surgery, General and Operative. By JOHN CHALMERS DA COSTA, M.D., Professor of Surgery and Clinical Surgery in Jefferson Medical College, Philadelphia. Sixth edition, thoroughly revised and enlarged, with 966 illustrations, some of them in colours. London and Philadelphia: W. B. Saunders Company. 1910. Pp. 1502. Price 24*s.* net.—The incessant progress of surgery makes it imperative that every new edition of a text-book should be thoroughly revised, and the author of this trustworthy treatise on surgery has done his best to make his work represent modern surgery. To mention only some of the additions, we have Crile's arterio-venous anastomosis for transfusion of blood, the operative treatment of recent fractures, the use of positive and negative air pressure in intra-thoracic surgery, Murphy's method of treating general peritonitis, and Bier's treatment and Wassermann's test. The work is written simply, in a style suited for the learner, and the numerous illustrations should prove useful. A few points suggest themselves for criticism, such as the advice that a rodent ulcer "requires scraping and cauterisation," but it is inevitable that in so extensive a work there should be some small blemishes. These, however, hardly detract from the general high character of the work. It can confidently be recommended to students as a trustworthy text-book, and a very complete index renders the work easy of reference.

The Essentials of Food. By DONALD STEWART, M.D. London: John Bale, Sons, and Danielsson. 1911. Pp. 182. Price 3*s.* 6*d.* net.—This is a handy volume designed for popular reading, written by a medical man of experience, who does not appear, however, himself to have made any special study or research in dietetics. He quotes largely from Chittenden and seems to adopt his protein standard (pp. 77 and 155) without reserve; but on p. 33 he gives 120 grammes protein as the amount in a "standard" diet. The phraseology used is vague—e.g., "the words nitrogenous, albumen, and proteid signify some obscure modifications of the same thing" (p. 46); sometimes it is erroneous—e.g., "of course there are no carbohydrates or starches in animal foods" (p. 19); milk sugar is an animal carbohydrate. One hesitates to question the author's instructions for making porridge, but does he really take (p. 94) only "one to three *teaspoonfuls* of oatmeal to every pint of water"? Even in a popular work on a small scale it is not commendable to write: "The fuel values are termed calories. The word means heat." The word has a perfectly definite meaning which can be stated shortly and without difficulty. On p. 134 we are told that "food is therefore fire," and lower down that "food is fuel." In explanation of the formula H_2O we read (p. 13) that the figure 2 in the symbol "means not two 'atoms' of the hydrogen, but two elements have to be taken with one of oxygen to form water." We are unable to divine the conception present in the author's mind. Eccentricities of spelling, such as "arson" for argon, phinol, and lypolytic, occur frequently. There is, however, in the book a good deal of information of a practical character expressed in popular language and in a readable form. Possibly the author did not revise his work carefully.

The Prevention of Dental Caries. By STANLEY W. R. COLYER. Pp. 23. Price 6*d.*—*The Prevention of Dental Caries.* By J. SIM WALLACE. Pp. 45. Price 1*s.* 6*d.* London: The Dental Manufacturing Co. 1911.—These are two very interesting essays, and would well repay careful perusal. Dr. Colyer holds the view that the destruction of the enamel in the early stages is brought about principally by the food in a fluid state, the fluid being held in contact with the teeth by capillary attraction, a view supported by a consideration of the usual sites of caries. The prevalence of caries in modern times he attributes to the more easily fermentable character of the carbohydrate food and the increasing number of articles of food in a partly acidly fermented state, which constantly introduce, not only acid, but also acid-producing organisms. Dr. Sim Wallace's thoughtful essay contains much that is useful and suggestive. He considers, and with good reasons, that caries may be easily prevented by careful attention to the dietary. The diet, he considers, should be of a kind to stimulate mastication, and the last food taken should leave the mouth clean, or, at least, free from carbohydrates. The dissemination of knowledge necessary for the prevention of dental caries must, he thinks, come mainly through the medical profession, and therefore no efforts should be relaxed in bringing before their notice the reasons for considering the hygiene of the mouth a most important part of preventive medicine.

Crime and Insanity. By C. A. MERCIER, M.D. Lond. London: Williams and Norgate. 1911. Pp. 255. Price 1*s.* net.—The task of compressing the treatment of a large subject into a small space is never an easy one, and of this the little book before us is an apt illustration. Dr. Mercier has done his best, but even his faculty for marshalling ideas and his powers of verbal expression leave an impression of sketchiness in the work. The nature of insanity and of crime, and the relations between the two, form the subject-matter of the book. Most readers, whether legal or medical, will turn with interest to a perusal of the opinions enunciated upon the vexed question of responsibility. While recognising that crime may be, and often is, the result of insanity, and that some persons are so completely insane that we are not warranted in punishing them for any offence they may commit, the author is yet of opinion that when an insane person commits a crime that is not the consequence of his insanity, it is no more just or proper to excuse him from punishment than to excuse a sane person. The mitigated responsibility here outlined has perhaps a larger number of supporters on the continent than in this country, but we have little doubt that the opinions on this subject advanced by Dr. Mercier will, with the aid of his persuasive pen, ultimately prevail. On the whole this little book is most interesting, and must serve to stimulate thought on the subject it treats.

Radiumnormalmasse und deren Verwendung bei Radioaktiven Messungen. By E. RUTHERFORD. Leipsic: Akademische Verlag-gesellschaft. 1911. Pp. 50. Price 1.50 marks.—This brochure discusses the new standard of pure radium which was adopted at the Brussels Radiological Congress and which is in course of preparation by Madame Curie. The work also contains chapters on the measurement of radium emanation, and on the newly discovered thorium products which bid fair to take, at least in part, the rôle of radium in radio-therapeutics. Anyone who desires to learn all that is to be known about radium dosage at first hand, and from the pen of a real authority, cannot do better than consult this short and yet complete work.

Johns Hopkins Hospital Reports. Vol. XVI. Baltimore: The Johns Hopkins Press. 1911. Pp. 670.—The studies of Dr. George Walker on the experimental production of tuberculosis in the genito-urinary organs occupy (including the bibliography) 222 pages. He mentions the following conclusions as points of surgical significance: Tuberculosis in the genito-urinary organs has only two initial points that need be taken into consideration as regards practical surgery—namely, the glomeruli of the kidneys and the tubules of the epididymis. Primary tuberculosis of the bladder never occurs, and primary tuberculosis of the prostate or vesicles is so rare that it may be disregarded. Descent of the disease process from the kidney to the bladder is common, while, though the reverse process may occur, it does so very rarely and only when there is a special involvement around the orifice of the ureter. Tuberculosis may descend from the vesicles and prostate to the epididymis, but ascent from the epididymis to these organs is much more common and is practically the only condition of surgical importance. In another study Dr. Walker investigates the effect on the breeding of rats consequent on the removal of the prostate or the vesiculæ seminales, or both. He finds that excision of both prostate and seminal vesicles renders the male sterile, but neither excision of the vesicles or prostate alone, nor of the vesicles and the prostate, appears to have any effect on capacity for the sexual act or on the structure or function of the testes. Excision of the prostate has no effect on the structure or function of the seminal vesicles. Dr. John Staige Davis writes on scalping accidents. He considers the historical data and anatomic considerations, gives case reports of various groups of scalping accidents, and discusses the symptoms, complications, prognosis, and treatment. He considers that Thiersch grafts give quicker and more lasting results than the small epidermic grafts of Reverdin. He also describes a series of animal experiments. Dr. J. Hall Pleasants deals with obstruction of the inferior vena cava, and reports 18 cases; he also tabulates from the literature 314 cases. The concluding paper is by Dr. Percival Douglas Cameron on Studies of Cardiac Tonicity in Animals.

Talks with Sanatorium Patients. By GILBERT HEATHCOTE, L.R.C.P. & S. Edin., L.F.P.S. Glasg., Medical Officer, Crossley Sanatorium. Manchester: J. E. Cornish, Limited. 1911. Pp. 47. Price 1*s.* 6*d.*—The advantages to patients suffering from pulmonary tuberculosis of residence in a sanatorium are in the main twofold—therapeutical and educational. During the period of treatment the patients are instructed in the mode of life they should adopt after they leave the sanatorium, for certain precautions will have to be taken for a long time after they lose the superintendence of the sanatorium physicians. In the volume now before us Mr. Heathcote explains in popular language the many points which have to be observed so that the benefit initiated by the sanatorium methods may be continued—the diet, clothing, the necessary amount of exercise and rest, and the preventive measures which should be adopted, are all duly discussed, and the remarks should prove useful to those for whom they are intended.

A Monograph of the Anopheline Mosquitoes of India. By S. P. JAMES, M.D. Lond., and W. GLEN LISTON, M.D. Glasg. Second edition, with 15 coloured plates. Calcutta: Thacker, Spink, and Co. 1911. Pp. 128. Price Rs. 16, or 25*s.*—Although this is described as the second edition of a work which we have already noticed in these columns, it has some claims to be regarded as a new work, if only on the technical grounds that the title has been altered from "Anopheles" to "Anopheline." There are also some more and some less important alterations. A few new illustrations have been added in, and interleaved with, the text, while the coloured plates, which are bound at the end of the volume, have been placed in a different order and their legends revised. The authors tell us in the preface that the descriptions of the species have been rewritten. In matters pertaining to science second thoughts are almost always best. And particularly is that the case in relation to a subject which is at the moment in course of extremely active growth. The authors are therefore well advised in giving to us the fruits of their further investigations upon the natural history of these important insects.

Our Baby: For Mothers and Nurses. By Mrs. J. LANGTON-HEWER. Thirteenth edition. Bristol: John Wright and Sons, Limited. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1911. Pp. 176. Price, paper, 1*s.* 6*d.*; leather, 2*s.* 6*d.*—This little book is already so well known to the public, and so few alterations have been introduced into this edition, that words are hardly necessary in commendation of its many merits or in censure of its few delinquencies. As a rule, when individuals who are not medically qualified attempt to deal with strictly medical questions they venture far beyond their depths and become submerged in a sea of difficulties. Mrs. Langton-Hewer, however, has not exposed herself to this reproach. She has not discussed medical matters beyond that point to which as an experienced nurse she is entitled to discuss them, nor would she abrogate to mothers or to the nurse the duties which should be confined to medical men. Her advice on all points of infant management is generally sound, though her attitude towards patent foods is not discriminating, while she shares the common belief of all nurses and all mothers that teething plays a most important part in the minor tragedies of the nursery.

JOURNALS AND MAGAZINES.

Æsculape. Vol. I., No. 8, August, 1911. Paris: A. Rouzaud. Subscription, yearly, 25 francs; single copies, 2 francs.—Among the contents of this number is an interesting article on the pathology of the Aztecs as seen in their votive offerings. Some of the offerings illustrated are distinctly suggestive of the maladies from which their donors had suffered. Another interesting article is that on the Institute of Serum-therapy for Snake-bite at Butamtan, near St. Paul, by Professor S. Pozzi. Dr. G. Encausse gives a brief account of the Aïssaouahs, or followers of Sidi-Ben Aïssa, a species of modern magicians, and of some of their demonstrations. Dr. Paul Rabier-Labiche furnishes an illustrated account of the art work of Dr. P. E. Colin, the physician-engraver. The art museum of Dr. Lannelongue at Castéra-Verduzan is described by Dr. Laurent Poncet. Dr. Auguste Marie, in an article entitled "Some Risks Run by the Medical Profession in Contemporary Society," gives a list of the injuries inflicted on medical men by the mentally unsound. The list begins with the shooting of M. Delpech in 1852, and ends with the wound in the head sustained by Dr. Ameline de Chezal while endeavouring to put down a mutiny in his asylum. Mr. Herbert Ward, Stanley's former companion, contributes a paper on cannibalism.

Man.—The September issue of this journal contains an elaborate article on the characteristics of nine human crania obtained from peat deposits in England and now in the University of Cambridge. Dr. W. L. H. Duckworth and Mr. L. R. Shore, by whom it has been written, have endeavoured to compare these crania with some of the classical palæolithic specimens, and for this purpose have employed four numerical tests—namely, the calvarial height index, the bregmatic angle, the lambda angle, and the breadth indices; the results are shown in a tabular form, and the paper is also illustrated by contour tracings of four of the skulls.

New Inventions.

A SIMPLE APPARATUS FOR THE INTRAVENOUS (OR INTRAMUSCULAR) INJECTION OF SALVARSAN.

THE intravenous method of injection of salvarsan is the best and least painful of all the methods employed, but the forms of apparatus provided for the injection leave much to be desired. The attachment of a long needle direct to the glass nozzle of the syringe introduces a degree of rigidity which is a great disadvantage, if not an actual danger. In introducing a quantity of 200 to 300 c.c. into the vein the syringe requires to be filled many times, and it is practically impossible to prevent considerable movement, with the risk of displacing the point of the needle from the lumen of the vein and the infiltration of the salvarsan solution into the surrounding tissues. The liability of the thin glass nozzle of the syringe to snap off short is a further point of disadvantage. I wish to describe a simple apparatus which is easy to use and free from the foregoing objections. It consists of an all-glass syringe connected to a nickel-plated three-way cock by a short length of 2 to 3 inches of stout indiarubber tubing of medium bore. To the second valve of the stop-cock is fixed about 15 inches of stout indiarubber tubing fitted with a metal attachment sufficient to reach to the bottom of the vessel containing the physiological salt solution or the salvarsan solution. To the third valve of the stop-cock a length of about 12 to 15 inches of rubber tubing is attached. An intravenous needle having a square butt-end which can be clamped flat to the arm by means of an indiarubber band is securely fastened to this tube. A small piece of glass tubing, about an inch in length, is inserted close to its end, so that it can be at once seen, by allowing the blood to

Reproduction of photograph showing method of injection.

flow back, whether the vein is properly entered, or whether, when the injection is being made, the physiological saline solution and the Ehrlich-Hata solution are flowing regularly into the vein. The security of the attachment at the various points is ensured by cutting off small bands from the tubing and attaching these over the joint. In this way the connexion between the rubber tubing and the nozzle of the syringe (which is that most likely to become disconnected) is efficiently secured. In using the apparatus the patient should lie with his arm resting close to the edge of the bed, with the solutions, previously warmed by standing in a basin of hot water, placed on a table close to and slightly higher than the couch on which the patient reclines. A tourniquet having been applied, the part is painted with iodine, and a short elastic band, such as is used for holding papers together, is slipped over the arm just above where it is intended to introduce the needle. The syringe and all its parts having been sterilised, the salt solution is drawn up into the syringe and all air expelled from it and from the tubes. With the saline running from the needle, the latter is introduced into the vein, when the blood immediately appears at the glass window; the elastic band is now drawn over the needle, which it holds securely in its place. A little saline is now injected, and the tubing is transferred to the salvarsan solution and the injection is completed. The extra length of tubing attached to the needle enables the operation to be carried out with ease and comfort and without any assistance whatever, and also permits a considerable amount of movement, by either the patient or the surgeon, without the risk of displacing the point of the needle.

Messrs. Squire and Sons, of 413, Oxford-street, London, W., have made me an apparatus of this kind, and they also supply the solution of salvarsan for immediate use.

Brook-street, W. G. W. DAWSON, F.R.C.S. Irel.

A NEW STOMACH CLAMP FOR PYLORECTOMY.

THE essential feature of a stomach clamp for use in the operation of pylorectomy is that it can be relied upon not to slip. Kocher's clamp does not fulfil this requirement, for while the portion of stomach nearest to the hinge—i.e., the greater curvature—is effectively crushed and firmly held, the gastric wall near the lesser curvature is but lightly gripped and tends to slip out of the grasp of the instrument. Messrs. A. Young and Son, Edinburgh, have made for me a clamp which possesses the following advantages:—The blades are slightly curved and very strong, with hog-back to ensure rigidity. The handles are of light construction, being merely for the purpose of applying the clamp and not for crushing. They are connected with the blades in such a manner that the latter always meet parallel (see illustration). The

crushing force is applied by two screws, one at either end of the blades, the one at the distal end being so constructed as to swing up into position after the clamp is applied. When the screws are tightened the stomach is gripped as by a vice, and slipping is not possible.

Edinburgh. D. P. D. WILKIE, M.Ch., F.R.C.S. Edin.

GRESHAM LECTURES, 1911.—Four lectures, on "Flies as Carriers of Disease," will be delivered by Dr. F. M. Sandwith, Gresham Professor of Physic, on Tuesday, Oct. 10th, Wednesday, Oct. 11th, Thursday, Oct. 12th, and Friday, Oct. 13th, at 6 P.M., at the City of London School, Victoria Embankment, E.C. The lectures are free to the public.

INFANTILE MORTALITY AT PORT SAID.—Dr. W. F. C. MacCarthy Morrogh, of the Egyptian Public Health Department, has furnished Mr. Vice-Consul Dunlop with the following report: "There was an increase in the death-rate at Port Said from 27·6 per 1000 in 1909 to 32·4 in 1910. This very considerable rise is due to the terrible infantile mortality. Out of 1444 deaths amongst natives 1068 were of children under five years. This may be accounted for by the ignorance of the parents of the first principles of hygiene, the want of proper care and attention during the early months of life, and improper food; the latter, besides being unfit for children, is often in a state of fermentation, if not putrefaction. There was an epidemic of diphtheria, 82 cases being reported. Here, again, the insanitary habits of the natives, the refusal to accept any preventive measures, and the failure to report cases caused the disease to spread. Most of the houses in the native quarter are built of wood, and it is impossible to keep out the rats which carry the infection. Twenty-eight cases of plague were reported, of which 13 proved fatal. About 17,000 rats were destroyed by the Public Health Department during 1910.'

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 30, 1911.

The National Insurance Bill.

THE autumn session approaches and there are signs already that further debates in the House of Commons upon the provisions of the National Insurance Bill will be keen. Indeed, so widespread in origin and so multifarious in detail has become criticism of the measure that our readers will hardly be considered over-cautious if they begin to take stock of the position in case no legislation follows at once upon Mr. LLOYD GEORGE'S far-reaching proposals. It appears that a good many members of the medical profession share the opinion of a good many members of the public that the Bill, even if it continues to be modified to the same generous extent that has already marked its course during the Committee stage in the House of Commons, cannot prove a well-thought-out measure. Another section of our readers appears to approve of the Bill, though in no very enthusiastic manner, congratulating themselves upon some of the necessary concessions to the medical profession, but viewing other provisions with apprehension; while actual advocates of the Bill among our readers seem to be a very small body. At the same time all enlightened feeling is on the side of a measure which promises so much for the happiness of the existing generation of workers and for the improvement of the health of the next generation. It is in matters of detail and in matters of administration that differences of opinion have manifested themselves to such an extent as possibly to imperil the future of the Bill. As the provisions are more closely looked at by different classes of the population the more do they appear in many directions to want definition. Although at each stage of the debate more or less clearness has been obtained by amendments great and small, there is no doubt that the fact that the measure has shown itself to be so plastic has in itself produced an impression of some distrust. This is well seen in an important letter appealing for the formation of a State service from the pen of Mr. ALBERT BENTHALL, which we print on p. 965 of this issue of THE LANCET. Mr. BENTHALL, whose experience in all matters connected with insurance against sickness and accident is extremely large, finds that the medical profession is taking on trust with far too much readiness the good working of the Local Health Committees, evidently holding that the medical representation on them will not be effective. The dispensing of medical benefits, as far as he can see, need be no better under these committees than it is at present, nor must the position of the medical men of necessity be improved. Mr. BENTHALL'S communication should be read with the attention that it deserves, but we think that his attack on the principle of a free choice of doctor shows an unnecessary distrust of his fellow-men.

Those who believe that the Bill, as far as the clauses which have been debated are concerned, is satisfactory point to two great things—the passing without a dissentient voice of an amendment by the Chancellor of the Exchequer providing for a free choice of doctor by the patient, and the great majority of 387 to 15 by which statutory control of the administration of medical benefits was taken away from the Friendly Societies and placed in the hands of Local Health Committees. The resentment which has been expressed by the Friendly Societies at this logical, and indeed necessary, alteration of the Bill, if the Bill were to be accepted by medical men at all, is, we understand, to have an outcome in a conference between the Chancellor, selected members of the medical profession, and the Friendly Societies. It is an admirable trait in the Chancellor's public policy that he is thus willing to listen to contending views and personally attempt to arrive at just conclusions therefrom; but although there are many points still to be considered in the Bill where such coöperative counsel as is foreshadowed might be valuable, we cannot admit that there is any necessity for debating again the freeing of the medical profession from the control of the Friendly Societies. In proof of this we need only suggest that any of our readers, if there are such, who have any doubt about the advisability of the distribution of medical benefits being removed from the Friendly Societies, should read the proceedings at the meeting of the delegates of the Ancient Order of Foresters at Burton-on-Trent at the beginning of August. An important officer of that association, in protesting against the right of the House of Commons to deprive the Order of the dispensation of medical benefits, described members of the medical profession as sweaters, supporting his words by errors of statement with regard to medical assistants, declaring also that the opposition to the control of the medical benefits remaining in the hands of the Friendly Societies came from men who were envious of those who possessed club practices. This gentleman appeared to think that the old days of the unqualified assistant still existed, and for him the "Battle of the Clubs" has never been fought. Another speaker practically gave it as his opinion that the control of medical benefits was essential to the continuation of the work of the societies, which is going further than anything we have ourselves asserted as to the importance of medical coöperation to these organisations. But we have always believed, and said, that the great inducement which Friendly Societies possess for intending members has been the supply of medical service. From this it would seem to follow that the funds which the Friendly Societies possess, and which command necessarily a good deal of reverence, have had their origin mainly in medical effort. This is the fact which has made the parsimonious treatment by the Friendly Societies of their medical officers particularly ungrateful. A third speaker at the meeting prophesied the formation of Local Health Committees which would be "swamped with doctors," and as a result of these and other lucubrations the Ancient Order formally protested against that amendment of Clause 13 against which in Parliament only 15 dissentient votes were given. From all this it is quite clear that great attempts will

be made to restore Clause 13 to its original wording, but the Chancellor of the Exchequer knows well that if this were done he would run the risk of providing a National Insurance Bill with no medical men to carry on its insurance work.

It supports the idea that the National Insurance Bill has been introduced to some extent at a venture to find that while Mr. BENTHALL sees that the action of the Local Health Committees will be detrimental to the interests of medicine, which profession he feels will be improperly represented upon them, a Friendly Society, representing over a million persons, concludes that these committees will be largely composed of practitioners, or the creatures of practitioners. The cynical might say here that it looked rather as if the Local Health Committees were likely to hit off the happy medium, and form a proper interchange of scientific and public spirit, but men of affairs will consider that they have been given a very strong hint to look closely into the constitution of the Local Health Committees. Similarly, the wide difference of opinion that exists as to how far the German model has been adequately followed leads us to suppose that the Chancellor, despite the anxious pains that he is known to have taken, has not been well-informed as to the position in Germany. Those who have supported the Bill because it was understood that similar legislation has worked extremely well in Germany are beginning to falter in their support of the measure since they have had time to compare the British scheme with the German scheme of insurance. There can be no doubt, as Dr. ERNEST J. SCHUSTER has recently pointed out in a pamphlet,[1] that, while, the German workmen's insurance as a whole may have worked satisfactorily, there is one branch in the conduct of which there has been a good deal of friction; and that is the insurance of temporary sickness. Our readers know well that Dr. SCHUSTER'S words are true. Dr. SCHUSTER suggests that the proposed British system and its uniform rate of contribution for benefits, not even depending upon the wages of the insured persons, is so entirely different from the German system that the success or non-success of the one can hardly be taken to furnish any guidance as to the probabilities of the success or non-success of the other. And now we have before us the remarkable evidence as to the influence upon German industries exercised by the various German insurance schemes, which is contained in the just published report of Sir FRANCIS OPPENHEIMER upon the Trade of Germany in 1910. The position of our National Insurance Bill is certainly an anxious one.

Digitalis in Heart Disease.

WRITING of the use of digitalis in 1778 WITHERING remarked: "It is much easier to write upon a disease than upon a remedy. The former is in the hands of nature, and a faithful observer, with an eye of tolerable judgment, cannot fail to delineate a likeness. The latter will ever be subject to the whims, the inaccuracies, and the blunders of mankind." Few have been better equipped by nature in his own day or since than WILLIAM WITHERING to undertake the task, and his "rules and cautions" for the employment of the drug may be perused with benefit to-day. "Let it be continued until it either acts on the kidneys, the stomach, the pulse, or the bowels; let it be stopped on the first appearance of any of these effects, and I will maintain that the patient will not suffer from its exhibition, nor the practitioner be disappointed in any reasonable expectation." And his last conclusion, "that it has a power over the motion of the heart to a degree yet unobserved in any other medicine, and that this power may be converted to salutary ends," is as true now as when he wrote. He had, moreover, the acumen to add that "If inadvertently the doses of the foxglove should be presented too largely, exhibited too rapidly, or urged to too great a length, the knowledge of a remedy to counteract its effects would be a desirable thing." Such a remedy, he finally remarks, may perhaps in time be discovered, an expectation which has not been disappointed, for atropine largely fulfils these conditions.

Every generation since WITHERING lived has added its quota to our knowledge of the use of digitalis in heart disease, "whimsical," "inaccurate," or "blundering" at times, to use WITHERING'S words, or nearer the truth in other instances and expressed in terms of the current physiology of the period. That, however, which is once true, is always so, although interpretations of the truth, or inferences from it, may vary and be correct or otherwise. It continues true, as WITHERING maintained, that digitalis has "a power over the motion of the heart," which the observation and skill of many have "converted to salutary ends." Opinion has, however, naturally varied with experience as to the circumstances and manner in which this powerful agent has proved most beneficial, and even after the lapse of more than a century our ideas lack precision in the matter. In the conclusions reached *individual* experience often proves to have played too large a part and to have obscured rational generalisation. It is recognised, however, that digitalis is impotent to influence heart-rate in the presence of febrile stimulation, and we now know the importance of determining the presence or absence of an infective endocarditis in the case of old disturbed lesions, even when the febrile movement is mild and intermittent. Extrinsic conditions, such as thyroidism and pericardial tethering, we also know may render futile the potential power for good of the drug. Authorities, again, in all probability have differed through attaching too great importance to personal experience, as to the value of the drug in the case of particular lesions. Thus the agent decried by CORRIGAN in aortic cases was extolled by BALFOUR as powerful for good when the same defect was present, while BROADBENT split the difference and indicated its utility in such cases when "mitral symptoms" supervened. This, however, was little more than to acknowledge that an aortic case had broken down, and the majority of observers still attach more importance to cardiac failure in such than in purely mitral cases, because experience has shown the former to be more difficult of remedy. Sir WILLIAM

[1] The Parliamentary Bill Examined and Compared with the German Scheme (reprinted from the Journal of Comparative Legislation), by Ernest J. Schuster, LL.D. London: John Murray and Co. 1911. Price 6d.

BROADBENT also maintained that while mitral regurgitant cases "almost always" benefited from the use of cardiac tonics, this was by no means equally so in mitral stenosis.

It seems, however, to have been generally agreed in the past that digitalis has found its most striking successes in uncomplicated mitral regurgitation associated with the general evidence of cardiac failure, on whatever lines it has been sought to explain this fact. In these circumstances of still existent uncertainty on many important points, every carefully considered record of experience in the use of the drug is worthy of note, and such a contribution appears in the last issue of *Heart*, which is wholly occupied by an article on digitalis from the pen of Dr. JAMES MACKENZIE. After an introductory generalisation as to the efficacy, or want of efficacy, of the drug in certain circumstances, he gives a detailed account of 40 cases in which the dosage and effects of the drug were carefully noted, and certain conclusions or impressions are finally expressed. Of his 40 cases no less than 20 had mitral stenosis or were diagnosed as such, one is described as "mitral," ten as "mitral and aortic disease," two as "aortic," and the remaining seven constituted a miscellaneous group containing cases of paroxysmal tachycardia, bradycardia, and emphysema. Of the mitral stenotic cases ten responded well to digitalis and eight apparently did not; of the mitral and aortic, only one seems to have answered definitely to the remedy. One of the stenotic cases could scarcely have been expected to show definite results, as it was evidently one of infective endocarditis, although the fact is not mentioned in the record, and had, of course, a fatal issue. Of the two aortic cases neither was notably affected by the drug, while in the miscellaneous group four improved under digitalis and three did not. It is not the amount of material here set forth, but the care with which the investigation was carried out which renders it worthy of consideration. The language employed by Dr. MACKENZIE is largely that of the new cardiology in which the auriculo-ventricular bundle and the various possible starting places for cardiac contraction and fibrillation of the auricle play a part, although he does not fail to ascribe a considerable rôle to the action of digitalis upon the vagus in modifying the action of the heart.

The general conclusions arrived at are, that "Cases of auricular fibrillation are more readily and markedly affected than cases with the normal rhythm." In other words, that the irregular heart, and particularly that explosively and often temporarily irregular heart which is usually associated with mitral disease, especially in younger subjects who have suffered from rheumatic fever and in whom the cardiac muscle is fairly sound, respond most easily to the drug. It is admitted that in persistent irregularities and in older people it is less successful. Dr. MACKENZIE suggests that the fibrillating auricle may render the auriculo-ventricular bundle more susceptible to the action of digitalis, which, by impeding the shower of auricular impulses regarded as falling upon the ventricle, may induce calm. Digitalis, however, it is contended, at times tends to *produce* auricular fibrillation. Some evidence is adduced that the diuretic effects of digitalis may be observed without any perceptible change in the heart, and two cases of tachycardia "arising from an abnormal source" are mentioned in which a more normal rate was established after the occurrence of fibrillation of the auricle.

The preparation of digitalis chiefly used was the tincture, and it was given in doses of 15 or 20 minims three or four times a day "until some definite reaction was obtained" of the kind indicated by WITHERING. The principle of pushing the drug, as experience has taught many, is frequently necessary to attaining success, but, while not averse from a guarded boldness in the use of digitalis, we own to a conviction that slow increase in dosage is usually quite effectual when remedy is possible by this means, and that the comparatively rapid induction of nausea or vomiting is rarely necessary and not always safe. Incidentally, Dr. MACKENZIE mentions some interesting observations on the inefficacy of some and the efficacy of other agents which have been employed in the treatment of heart disease. Thus he found aconite, long regarded as a retardant of cardiac action, to be quite inert in medicinal doses. Although he found strophanthus acted well in regulating irregular hearts, he never observed it to succeed where digitalis had failed. Atropine, he convinced himself, was potent in accelerating some hearts retarded by the action of digitalis. It will thus be noted that Dr. MACKENZIE'S experience of the use of digitalis in heart disease differs little from that of many others who have recorded their observations. Yet we fully recognise his painstaking endeavour to secure trustworthy data for the formation of more precise and scientific opinion on the use of a drug which is still used by many empirically, and which, like most agents capable of effecting good, requires to be employed with all the circumspection possible.

Annotations.

"Ne quid nimis."

CERTIFICATE OF PROFICIENCY IN VACCINATION.

THE Local Government Board has issued a circular dated Sept. 21st, 1911, with reference to the certificate of proficiency in vaccination which is required to be produced by a medical practitioner to a board of guardians before he can enter into a contract with them for public vaccination. A certificate of proficiency in vaccination can in general only be obtained from a teacher authorised by the Board after due instruction and examination. The Order of 1905, however, permitted certificates of proficiency to be given to certain classes of medical men after examination only and without a previous course of instruction. The present Order extends the exemption from the course of instruction prior to examination to any person already holding a medical diploma or degree granted in a British possession or foreign country who is a candidate for examination by an examining body in the United Kingdom for a diploma, licence, or degree conferring the right of registration under the Medical Acts. The new Order supersedes the Order of 1905 and incorporates its provisions. The following teachers and examiners are entitled to give such certificates of proficiency

in vaccination (to the special classes of medical men defined in the Order) after examination only, and without a preliminary course of instruction:—

STATION.	NAME OF VACCINATOR WITH ADDRESS.
London—Tolmers Square Institute, Drummond-street, N.W.	Mr. Joseph Loane, 13, Great Alie-street, E.
Bristol—St. Peter's Hospital, Bristol...	Mr. George Shepley Page, 78, Old Market-street, Bristol.
Liverpool—17, Mulgrave-street ...	Mr. Nathaniel Edward Roberts, 17, Mulgrave-street, Liverpool.
Newcastle-upon-Tyne—The Dispensary, Nelson-street...	Dr. Frank Hawthorn, 6, Regent-terrace, Newcastle-upon-Tyne.
Edinburgh—The Western Dispensary, St. Cuthbert's Hall, Riego-street, Tollcross	Dr. John Brown Buist, 1, Clifton-terrace, Edinburgh.
Dublin—45, Upper Sackville-street	Dr. Alexander Nixon Montgomery, 45, Upper Sackville-street, Dublin.

A practitioner who has obtained a certificate of proficiency in vaccination granted by a teacher authorised for the purpose by the Board as a condition of obtaining a diploma, licence, or degree is not required to produce it before entering into a contract with a board of guardians for public vaccination. The Order will be placed on sale, so that further copies may be obtained from Messrs. Wyman and Sons, Limited, Fetter-lane, E.C., either directly or through any bookseller.

COW-DUNG FLOORS AND PLAGUE PREVENTION.

FROM a medical correspondent possessing an intimate knowledge of the social and religious life of the natives of India, and a close acquaintance with their habits and customs, we have received an interesting communication in which he endeavours to prove that the comparative immunity from plague experienced by Madras and Eastern Bengal is due to their methods of practising domestic hygiene, and particularly to their carrying out the very ancient custom of frequent spreading or washing of floors with cow-dung. He points out that, on the other hand, in the Punjab and other northern and north-western provinces which have been, and still are, suffering severely from the ravages of plague, and which are, as he expresses it, "too highly Mahomedanised," this spreading of cow-dung on the floors has been neglected, the people having abandoned largely this old Hindu practice handed down to them by their forefathers. There is no doubt a religious side to this question, and for that reason we hesitate to express ourselves as freely as we otherwise might have done. But our remarks are made strictly from the sanitary point of view. We understand our correspondent's view to be that this dung treatment of floors acts in two ways:—firstly, there is a slight chemical action upon organisms which may be present on the floor; secondly and mainly, the mechanical effect is to entangle in the semi-liquid dung and thus destroy any fleas or flea-eggs. We think, however, that sprinkling the floor with a weak solution of some disinfectant, accompanied with frequent vigorous sweeping, would effect more benefit, especially if the floor were made smooth and impervious by cement or in other ways. There is also another consideration to be kept in mind—namely, that tubercle bacilli may be present in the cow-dung, and that these might in one or another way infect the inmates of the dwelling. Our correspondent argues that the ancient method of "cleansing" floors is well known to all classes of the inhabitants of India, and that its adoption could be more easily enforced than could any other procedures suggested by sanitarians. We are, however, of opinion that as a plague-preventive measure this use of cow-dung has nothing to commend it. The first Indian Commission showed by experiments that B. pestis can live in sterilised cow-dung for several weeks, or even months, though in unsterilised dung the microbe did not survive longer than six days. That cow-dung has little effect in preventing the multiplication of fleas has been proved by the Advisory Committee for the Investigation of Plague in India, one of whose prominent members, Dr. C. J. Martin, director of the Lister Institute, has made the following statement in one of his reports: "The Indian hut, with its floors of cow-dung and its indescribable litter, in addition to providing cover for rats to nest, affords good breeding ground for fleas of all sorts. The amount of vermin infestation of these houses may be gathered from the fact that in one room in which dead rats had been found and plague cases had occurred the Commission for the Investigation of Plague in India secured 263 fleas." Cleanliness of persons and of house interiors, with admission of sunlight and fresh air, will do more to prevent plague in Hindu huts than the spreading of cow-dung on the floors. It is well known that the vitality of B. pestis is quickly acted upon by exposure to the rays of the sun or to the effects of drying, as, for example, by a current of air.

INJURY OF THE SPINE DUE TO MUSCULAR EFFORT.

IT does not appear to be generally known that serious, and even fatal, injury of the spine may be a result of muscular effort. In the *Glasgow Medical Journal* for July Dr. George S. Middleton and Dr. John H. Teacher have reported a remarkable case of rupture of an intervertebral disc. An engineer's labourer, aged 38 years, was admitted into the Glasgow Royal Infirmary on Feb. 12th, 1910. At 6.30 A.M. on the 8th, while lifting with another man a heavy plate from the floor to a bench 3 ft. high he "felt something crack in his back." He could not stand up straight, but had to remain bent on account of pain and a feeling of weakness in the back. For a quarter of an hour he tried "to straighten himself" and then walked home—a distance of two or three minutes—in a bent position. He said that he had often lifted heavier weights before without injury, and the man who assisted him did not suffer in any way. When he reached home he sat in a chair fairly comfortable, but movement caused intense pain, radiating from the back round both sides. He was seen about 1 P.M. by his medical attendant, who ordered him to bed. He was able to walk to the bed, but could not stand, his legs giving way. He attributed the difficulty to excruciating pain in the back. In bed he was most uncomfortable, turning and twisting to find a comfortable position and suffering much pain in the attempts. He felt sick, but did not vomit. On that night he micturated for the last time. Between 2 and 3 A.M. he felt an agonising pain shoot down from his chest to his feet with peculiar sensations as if his limbs were "sleeping." This soon passed away, and he found that he could not move either leg. The bladder and bowels became paralysed and on Feb. 12th he was sent to hospital as a case of intestinal obstruction. In the ambulance van his bowels acted without his knowledge. On admission there was great distension of the intestines and bladder and complete flaccid paralysis of both legs with anæsthesia as high as Poupart's ligaments. The cremasteric and all the reflexes of the lower limbs were absent. Both legs became atrophied in their whole length, including the glutei. At the upper part of the buttocks two acute decubital sores formed. He grew steadily weaker, the urinary sepsis increased, the temperature rose, rigors occurred, and he died on Feb. 24th. At the necropsy no irregularity of the spine could be made out either externally or after opening the canal. There was no clot outside the dura mater. There was marked softening of the lumbar enlargement of the cord with brown staining indicative of hæmorrhage, but there were no clots. There were also early hypostatic pneumonia at the left base, septic cystitis, pyelitis, and

abscesses in the kidneys. After hardening in formalin the cord showed much blood in streaks through several segments of the lumbar enlargement. A segment about a quarter of an inch long was thinner than the rest and appeared to have been crushed. Opposite this, entangled in the loose fibrous tissues outside the dura mater, was an irregular circular flat mass of firm white tissue which looked like the pulp of the centre of an intervertebral disc. Microscopic examination showed the characteristic structure of this pulp. The mass was 15 millimetres in diameter and 5 thick. Its margins were ragged; a few red blood corpuscles adhered to them entangled in the shreds. Microscopic examination of the cord showed advanced softening amounting almost to necrosis in the central parts and much diffuse blood infiltration extending above and below the crushed segment. There was early secondary degeneration of the various tracts. Unfortunately, the portion of the intervertebral disc was not noticed until the day after the necropsy, when further examination of the spine was impossible. But injury or displacement of the vertebræ of the common types had been searched for and could be excluded. From the position of the injury of the cord it seemed that the disc which gave way was that between the twelfth dorsal and first lumbar vertebræ. When the injury took place the back must have been bent with the lumbar and abdominal muscles in full action. This would powerfully compress the intervertebral discs with the anterior margins of the vertebræ approximated—a favourable position for displacement of the pulp of the intervertebral disc backwards. A case presenting some similarity in respect to injury of an intervertebral disc has been recorded by Kocher. A man fell 100 feet and sustained various injuries, including rupture of the bowel, from which he died in some hours. The disc between first and second lumbar vertebræ was smashed and squeezed out from between the bodies, which appeared to be undamaged. Both cases show the possibility of injury to the intervertebral disc without visible injury to the vertebræ.

THE PREVENTION OF MALARIA IN ATHENS.

THE name of the Athenian Ilissus awakens in many of us ideas of beautiful scenery. Images are evoked by its name such as succeed in our minds at the mention of the streams of Yarrow, Thames, or Liris. Consequently it is a shock to find the Ilissus accused of causing the malaria which has long hung about Athens. That is the charge brought against it by Professor Cardamatis of Athens, who has explained in the *Archiv für Schiffs- und Tropen-Hygiene* for August how he has freed the Ilissus from this disgrace. As he says, there are two conditions required for the spread of malaria: patients there must be, infected and infective, as well as mosquitoes to carry the infection; remove one or other of these factors and the malaria ceases. Either, that is, cure the patients by the administration of quinine, or get rid of the breeding places of the anopheles, or combine both methods. Professor Cardamatis reports that New Anchialos was freed from malaria by quinine, while at Marathon he and a colleague got rid of it by quinine and improved drainage. In Athens the controlled treatment of all individuals by quinine was impossible, so he attacked the state of the Ilissus, a sluggish stream which spreads itself into many wide shallow semi-stagnant pools, the very places for mosquito larvæ, further sheltered as these are by the weeds which grow in the slow-moving water. He cleaned the river bed, by embankments and deepenings narrowed its course and expedited its flow, and he has the new bed swept out every week to get rid of anopheles' eggs which may have become deposited. These works were begun in 1906. In the years 1901–1905 inclusive the children of the neighbouring schools found to be infected with malaria had averaged 80 per cent. The number at once began to fall, and in 1906 and subsequently the proportions found infected were successively, per cent., 60, 21, 2⅔, ⅔, and none. Thus the course of the Ilissus has been freed from malaria, and Professor Cardamatis deserves credit from every lover of Ancient or Modern Greece and from every sanitarian for the striking improvement he has secured by measures so simple and so sagacious.

BEER AS A CONDIMENT.

ALTHOUGH beer does not contain a large amount of nutrient material there appears to be little doubt that in the healthy individual it favours the assimilation of food in a manner akin to such condimental substances as meat extract, pepper, salt, vinegar, mustard, and so forth. Recent investigations on this point at all events show that malt extractives contained in beer, added to a dietary almost devoid of organic condiments, increase the assimilation of non-nitrogenous food-stuffs, particularly fats. In addition 86 per cent. of the extractives of beer themselves are assimilated and yield about 81 per cent. of their thermal energy to the system. Beer supplies, however, a negligible amount of proteins, but the stimulus of its alcohol increases protein absorption from nitrogenous foods. In these scientific terms, therefore, the practical observation that beer, bread, and cheese make an appetising nutritious whole receives definite endorsement. Physiologists have put forward from time to time various explanations of the fulness and plethora which often succeed the habitual and excessive drinking of beer—it is strikingly exemplified in the brewer's man—and it now appears that this effect is not due to the nutritives of the beer, but to the tonic or condimental action of the malt extractives, which increase the assimilation of the foodstuffs partaken with it. Some valuable scientific contributions upon this and related subjects appear from time to time in the *Journal of the Institute of Brewing*, in which will be found the reports of the International Physiological Research Institute founded for the purpose of carrying out investigations on the physiological effects of beer and other alcoholic beverages. These researches will be welcomed as calculated to throw light upon the hygienic aspects of the national beverage.

SCARLET RED AS A STIMULANT TO THE EPITHELIATION OF GRANULATING SURFACES.

IN 1906 B. Fischer drew attention to the remarkable growth of epithelium produced by the subcutaneous injection of a saturated solution of the dye known as scarlet red in olive oil into the rabbit's ear, and suggested therapeutic possibilities. His experiments have been confirmed and extended by a number of investigators. Schmieden first adopted his suggestion and in 1908 reported rapid healing of sluggish ulcers. He used an 8 per cent. ointment and alternated it every 24 hours with some bland ointment on account of the irritating properties of the scarlet red. He insisted that the granulations must be perfectly clean and flat, and that it was useless to apply the ointment to an unclean ulcer. Kaehler modified Schmieden's technique and obtained good results in unhealthy granulating wounds. Krajea then used scarlet red in conjunction with partial Thiersch grafts and found that their edges, as well as those of the wound, were stimulated. In the *Johns Hopkins Hospital Bulletin* for June, 1909, Dr. John Staige Davis reported 60 cases in which he had used scarlet red with satisfactory results, and in the number for June, 1911, he has returned to the subject. Carrel, the well-known American surgeon, states that when at the end of the period of "granulous retraction" of a large wound the edges of

the old epidermis are still at a distance of 20 to 25 millimetres the new epidermis cannot spread on the granulations and cicatrisation comes to a standstill. In almost all the wounds treated by Dr. Davis "granulous retraction" had long ceased, epidermisation had come to a standstill, and the areas were for the most part very large. Nevertheless, marked epitheliation took place from the once sluggish edges, and subsequent rapid healing. Several chemically different dyes are sold under the name of scarlet red, of which Dr. Davis has used three. He has obtained the best results from toluene-azotoluene-β naphthol. He obtained marked epithelial stimulation even when the wounds were unhealthy and the discharge profuse, but the most rapid results were obtained in flat healthy granulating surfaces. His technique is as follows. Cleanse the wound thoroughly with boric or salice solution and dry. Peroxide of hydrogen may be used before the boric solution if the granulations are unhealthy. Nitrate of silver stick is freely used to keep down exuberant granulations. Tincture of iodine (U.S.P.) may follow the silver or be used on alternate days and is a powerful and rapid cleanser of granulations. The scarlet red ointment is usually of 8 per cent. strength, and it is alternated every 24 or 48 hours with some bland ointment. The ointment is applied as follows. Anoint the skin around the defect with some bland ointment to within 1 centimetre of the wound, to prevent irritation. Spread the scarlet red ointment on a thin layer of perforated old linen and apply to the wound either along the edges or over the whole surface. A light dressing of sterile gauze completes the procedure. A 4 per cent. ointment may be used on partial skin grafts of all kinds and causes rapid growth of epithelium from the wound edges and the grafts. Dr. Davis has also used with equally good results amido-azotoluol, a component of scarlet red. Some writers have gone so far as to claim that by the use of these substances skin-grafting can be abolished. Dr. Davis thinks that this is claiming too much, but he has no doubt that wounds can be healed which otherwise could be closed only by grafting. The skin produced is stable and resistant, and of normal appearance macro- and microscopically. There is no tendency to subsequent contraction, and the skin becomes moveable on the underlying tissues.

THE DANGERS OF BRIQUETTE MANUFACTURE.

LAST year the Secretary of State certified the manufacture of patent fuel (briquettes) with addition of pitch to be dangerous, and draft regulations were issued which it was proposed to apply to this industry in pursuance of Section 79 of the Factory and Workshop Act, 1901. Objections were subsequently received by the Secretary of State, who thereupon directed an inquiry to be made. For this purpose Mr. Alfred Herbert Lush, barrister-at-law, was appointed, and his report has just been issued. On the whole, he concludes that the industry is not an unhealthy one—in many respects, indeed, it is said to be exceptionally healthy. But there are two elements of danger, he adds, due to the action of pitch fragments or dust on the eyes and of pitch dust on the skin. The dust induces chronic changes in the corneal and sclerotic coats of the eye, and wounds are sometimes inflicted by flying fragments during digging or breaking pitch which are difficult to heal, and impaired sight or even blindness frequently follows. The so-called pitch warts form on the body after a considerable period of working in the briquette factory. Usually these warts are not malignant in character, save when they occur in particular parts of the body—the lips or genital organs, and more especially the scrotum—producing that scrotal epithelioma which, though a rare disease amongst the general population, is frequent amongst chimney-sweeps who are exposed to soot in the same way as are fuel-workers to pitch dust. Remedies are proposed in the draft regulations which include the prevention of dust, the wearing of overalls and goggles, and frequent washing. It has been agreed to institute trials in order to find out the practicability of applying the suggested regulations. Meantime it seems desirable to attack the question as to what is the harmful substance in pitch with the view of eliminating it.

HOSPITAL FINANCE IN LONDON.

THE statistical report on the ordinary expenditure of London hospitals for the year 1910, which has recently been issued by King Edward's Hospital Fund for London, is a very interesting document. Statistics relating to 106 institutions are dealt with in the report, the first section of which consists of an alphabetical series of tables giving general statistical particulars, total expenditure, cost per bed occupied, and per out-patient attendance. The other sections of the report analyse in detail the expenditure of such of the hospitals as can be conveniently grouped together. As pointed out in a prefatory note, it can hardly be expected that the hospitals, whose expenditure has now been analysed for several years, should show further reductions in cost on the same scale as those which followed the issue of the first report. The fact, however, that the report for 1910 shows a saving of £2000 over the previous year's economies, in spite of the development of new methods of treatment and the sustained rise in prices, speaks well for the way in which the hospitals of the metropolis are managed. In 1905 economical methods effected a saving of £21,000 in the case of 16 hospitals; and in 1906 48 hospitals showed an additional saving of £18,000. In the following period a change was made in the keeping of hospital accounts, and comparisons were impossible till 1908–09, when a further saving of £8000 was shown by 55 hospitals. The document, which can be obtained from Messrs. Spottiswoode and Co., Limited, 5, New Street-square, London, E.C., is published at 1s. net, or 1s. 3d. post free.

THE DANGERS OF INTRAVENOUS INJECTION OF ALKALINE SOLUTIONS.

THE use of large doses of carbonate of soda and other alkalies in the treatment of various forms of acidosis, and especially that of diabetic coma, is a well-established practice; but it appears from the experiences of Dr. Léon Blum, published in *Semaine Médicale* of Sept. 13th, that there is a limit to the safety of this measure, especially when the intravenous method of administration is used. One of the cases described by him will serve as an illustration of certain untoward effects, which are apparently to be ascribed to the toxic action of sodium. The patient, a woman, 34 years of age, was in an early stage of diabetic coma, and it was decided to administer sodium carbonate intravenously. A 5 per cent. solution was used, and a vein on the bend of the left arm was exposed and the cannula introduced. After a few drops of the solution had been poured into this vein it swelled up for a distance of six centimetres, and no further fluid could be induced to run in. The injection seemed to be painful. A further attempt was made with another vein of the same arm, but with an equally unsatisfactory result, and the skin and subcutaneous tissues in immediate relation with both veins became discoloured by infiltration with blood. The cephalic vein of the right arm was next used; here, however, the same phenomena were repeated, the vein swelling to the size of the little finger as far as the axilla. By means of massage of this vein it was possible to introduce 750 cubic centimetres of the solution, though with difficulty and at the cost of giving the patient evident pain. Almost immediately after the injection was

completed the state of somnolence which had served as the chief indication for its use deepened into coma, and both pulse and respiration became feeble. Between this and death, which followed about four hours later, there were several severe attacks of clonic convulsions. A post-mortem examination disclosed no gross injury of the central nervous system; the veins of the left arm were normal, while that in the right arm was filled with clot, though there was apparently no phlebitis. Blum produces various experimental and clinical facts which are in accord with this experience, and go to prove that alkaline solutions, if of too great a strength, are capable of producing venous spasm and various evidences of central nervous poisoning. Convulsions, which have been described as occurring with the very greatest rarity in diabetic coma, are especially related to the injection of these solutions, so that there is little room for doubt as to their causation. Blum believes that it is the sodium of the salt that is toxic, for various ill-effects have been noted after the injection of so innocuous a compound as the chloride. Unhappily, as he points out, it is not so easy to balance the effect of sodium in alkaline injections as in those designed for the introduction of the neutral chloride; in the latter potassium and calcium chlorides are added to the sodium salt, but in the former the use of calcium, at least, is precluded by the formation of insoluble calcium carbonate. In default of such a plan Blum recommends the use of bicarbonate of soda in a 6 per cent. solution. This should be boiled for a quarter of an hour, not only to sterilise the solution, but also to render it less toxic by converting the bicarbonate into the carbonate of soda.

THE BACILLUS COLI AND PLANT DISEASES.

AN interesting inquiry has been undertaken by Mr. John R. Johnston, for the Laboratory of Plant Pathology, United States Department of Agriculture, as to the relation between bacillus coli and certain plant diseases. The inquiry arose in this way. In August, 1909, two different cocoanut trees in Cuba were found to be very seriously affected with bud-rot. Certain bacterial organisms were isolated therefrom and seven apparently healthy trees were inoculated with the cultures. In about three weeks a soft white rot, typical of bud-rot disease, was found in each case. Isolations made from these artificially diseased trees were then sent to Washington for study. Four of these, from different trees, were inoculated into four cocoanut seedlings, and typical soft rots resulted. Isolations were again made from these rotted tissues and further inoculations were practised, with similar results, the organisms recovered being the same as those found in the first artificially infected trees. It thus seemed as though at least one organism capable of causing the bud-rot of the cocoanut palm had been identified. Examination of this organism showed that its cultural characters corresponded to those of the bacillus coli, so that the principal means of identifying the bacillus coli were applied to the cocoanut organism, and the two organisms were subjected to a close comparison in great detail, with the result that "it was found impossible to ascertain any characters by which the cocoanut organism could be distinguished from the bacillus coli received from the animal pathological laboratories.' The converse experiment was then made, and it is this that forms the subject of Mr. Johnston's paper.[1] Cultures of bacillus coli of animal origin, obtained from different laboratory sources, were inoculated on different occasions into the heart tissues of 11 cocoanut seedlings about 1 metre high in a greenhouse in Washington, three other seedlings receiving a plain inoculation as checks. In every instance the result was a water-soaked area about the inoculation hole, and in three cases also a soft-rotted area. The checks, however, showed neither water-soaked nor rotted area. Inoculations of bacillus coli were next made into three cocoanut trees in Cuba and infected the trees, producing brown, wet-rotted areas. Ten subsequent inoculations into seedlings in a greenhouse showed browning of tissues in six cases, two showed good brown rots, one a typical soft wet rot and a brown stain, and one a wet rot. Bacillus coli was recovered from six of the first batch of seedlings inoculated, and from each of the three trees; no platings were made from the second batch of seedling inoculations. The identification of the bacillus coli was in each case made by all the usual methods. Mr. Johnston concludes that the finding of very closely allied forms in the many cultures made, together with the presence of a form indistinguishable from bacillus coli, indicates a probable greater importance of this organism in relation to the vegetable world than has heretofore been recognised. Comparative pathology, even among different members of the animal kingdom, is a science of comparatively recent growth. Its extension to the correlation of animal and vegetable pathology may open up unsuspected factors in etiology

[1] Is Bacillus Coli a Plant Parasite? By John R. Johnston. Phytopathology, vol. i., No. 3. June, 1911.

AN ALLEGED MURDEROUS ASSAULT EXPLAINED AWAY.

MEDICAL evidence and the fact that corroboration of her story was not forthcoming proved fairly conclusively, at a recent inquest held at Chelsea, that an account given of certain injuries by a lady residing in a flat in Park Walk, S.W., was the outcome of delusions on her part. Miss Ada Solly Flood, 54 years of age, was found by her servant, who had been out from 3.30 to 11.30 P.M., to be suffering from cuts on her head, and to her, as well as in a letter to her medical attendant, Miss Flood told a story of two men wearing motoring caps who came to the door of her flat, which she opened. According to her, one of them then struck her on the head with a weapon, and when she came to her senses she found that a purse containing money had been stolen from her flat. The police made inquiries, but could not find any trace of the flat having been invaded as described, and the manager of the establishment gave evidence at the inquest to the effect that he believed it was impossible that the alleged incident could have taken place. It was stated, however, by the servant that a purse had in fact disappeared. Miss Flood after the evening in question became very ill and was medically attended, dying three days after the supposed attack upon her. A cousin deposed at the inquest that she suffered from hallucinations, and the evidence of her servant left no doubt that she was an alcoholic subject. The medical evidence was to the effect that the injuries of the deceased might have been due to a fall, and that death was from heart failure and had been accelerated by alcoholic excess. The jury gave a verdict accordingly, saying nothing as to the alleged assault. Such cases as these are not uncommon in the records of forensic medicine, and sometimes put the equipment of the medical practitioners consulted to a severe test. It is not difficult to see that in analogous circumstances there might be considerable risk of a miscarriage of justice.

INCORPORATED ASSOCIATION OF MEDICAL OFFICERS.—The following are the principal papers announced to be read during the ensuing session of the Association of Medical Officers which opens on Friday, Oct. 20th: Mr. H. C. Barker, superintendent of the out-patient department of the London Hospital, on "Medical Treatment of London County Council School Children"; Mr. Godfrey Hamilton, secretary of the National Hospital for the Paralysed and Epileptic, on "Hospital Appeals"; and Mr. L. H. Glenton Kerr, secretary of the Great Northern Hospital, on "Paying Hospitals of the Future."

ASYLUM REPORTS.

Down District Lunatic Asylum, Downpatrick (Annual Report for the Year 1910).—At this asylum the daily average number resident was 753. The admissions numbered 133, being 14 less than the number admitted the previous year. Of these, 103 were first admissions and 30 readmissions. The discharges numbered 70, and of this number 65 were recovered; the recovery-rate on the admissions stands at 48·9 per cent. Deaths numbered 54, being a rate of 7·2 of the daily average number resident. The deaths are registered as due to heart lesions in 20 cases, to phthisis and other tuberculous affections in 17 cases, to pneumonia in five cases, and to general paralysis, organic brain disease, and liver disease in two cases each. Mr. M. J. Nolan, medical superintendent, remarks that the Inspectors of Lunatics in their fifty-ninth report lament that the county councils have failed to avail themselves of statutory provisions "by which a common laboratory might be provided and a pathologist appointed." He fears that the subject is one which is so removed from the trend of county affairs that it will remain a dead-letter so long as the provisions are optional. He points out that though special rates are levied for a variety of purposes of questionable utility, some at least of which are either sentimental or intangible, yet that in Ireland no organised effort scientifically to investigate the causes of the burden of insanity is made.

Joint Counties Asylum, Carmarthen (Annual Report for the Year 1910).—The average daily number resident was 680. There were admitted during the year 109 patients. Of the admissions the attack occurred for the first time in 64 cases, and of these 35 were admitted within three months of the onset of the mental disorder, and therefore constituted the most favourable group for treatment; 38 cases showed symptoms of mental disorder, about which little or no hope of recovery could be entertained from the first. In 16·7 per cent. of the admissions (excluding statutory readmissions) there was ascertained a history of hereditary insanity or allied disorders. Mental stress, sudden or prolonged, was attributed as an etiological factor in 43 cases; while alcoholism was assigned either as an exciting or a predisposing cause in 13 cases, or 12 per cent. of the total admissions. There were 43 discharges, and of these 27 were recovered. Of the cases discharged recovered 10 were in residence from one to three months; 9 from three to six months; 3 from six to nine months; 1 from nine to 12 months; 2 from one year to two years; and 2 from two to three years, the average duration of residence being seven months, and the average age of the patients 39 years. The deaths numbered 54, and necropsies were performed in 41 cases. Tuberculosis still figures highly as a cause of death, but it is satisfactory to know that the proportion per cent. of tuberculosis deaths in all cases, namely 18·5, in the past year is the lowest recorded for 12 years, and that it has shown a steady decline since 1906, when the rate at this asylum was 38·9. One male patient died from senile decay at the advanced age of 106. An interesting point in his case was the fact that he had not lost a single tooth during life.

Kent County Lunatic Asylum at Barming Heath (Annual Report for the Year 1910).—The average daily number on the registers was 1627. There were admitted 405 patients; 15·3 per cent. of the direct admissions were over 60 years of age. 66·6 per cent. of the patients had been ill for more than a month previous to admission. Of the direct admissions, 27·5 per cent. had previously been discharged recovered, this being rather a lower percentage than usual. Dr. H. Wolseley-Lewis, medical superintendent, points out that this high rate means that there are a number of unstable people who, under the ordinary stress of life, break down mentally, and that, unfortunately, this mental instability is a quality likely to be transmitted to their offspring should they have any. In 50 9 per cent. of the admissions hereditary defect was ascertained. The discharges numbered 183, of whom 132 were recovered. 65 1 per cent. of the recoveries took place within a year from the commencement of the attack; 50 per cent. of those discharged recovered had a neurasthenic history, and in 65·1 per cent. the form of disease from which recovery took place was either recent melancholia or recent mania. There died 207 patients, being a percentage of 12·7 on the average daily number on the registers. In 85 per cent. of the deaths necropsies were performed. The chief causes of death were phthisis, 17·3 per cent.; morbus cordis, 16·4 per cent.; general paralysis, 13·5 per cent.; senile decay, 11·1 per cent.; and dysentery, 5·3 per cent. Of the 1629 patients who remained in the asylum on Dec. 31st, 1483 were considered quite incurable.

Kent County Lunatic Asylum, Chartham Downs, Canterbury (Annual Report for the Year 1910).—At this asylum the average daily number on the registers was 1014. There were admitted during the year 224 patients. There were discharged 99 patients, of whom 72 were recovered, being a rate of 32 per cent. on the total number of admissions. The deaths numbered 135, being 17 less than the previous year.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

County of Rutland.—Dr. Christopher Rolleston in his report details the method of medical inspection and the steps taken to ensure the coöperation of the parents; the routine is somewhat elaborate. As a rule, not more than 24 children are examined in any one day, and ten minutes are taken for each case, weighing, measuring, and vision-testing being done by the medical officer. A letter of notification is sent to the parent by post from the education office, and the exact time at which the child will be inspected is stated on a gum slip affixed to the letter. The time of the parent is thus saved and also the inconvenience caused by a crowd of waiting parents. The ordinary schedule of the Board of Education is followed, but in addition the method of feeding and upbringing in infancy and early youth is inquired into, and also the age at which the child began to talk and walk. The name of the family medical man is ascertained, and any defects revealed are notified to him by letter at the close of the examination. At the expiration of three months the school medical officer pays a return visit and re-inspects the children found defective at the previous examination; if the children have not been treated a second letter is then written to the parents urging them to get advice, and asking them if they have any difficulty in obtaining treatment to write to the superintendent medical officer and inclosing a stamped addressed envelope. Despite these methods, the result is not encouraging—of 344 cases referred to medical men only 58 sought advice, a percentage of 16·8. Dr. Rolleston suggests that if local committees could be formed (presumably care committees) better results would be obtained, but the difficulties of treatment in Rutland are considerable; for instance, there is no X ray apparatus in the county, and the parents usually obtain some expensive quack remedy for the treatment of ringworm from the grocer or chemist. "This," says Dr. Rolleston, "is dabbed on the victim's head from time to time when the parent has nothing else to do." The statistics of nutrition have a special interest because of the facts collected with regard to the method of feeding in infancy. In the group "Entrants and Leavers" 2·8 per cent. of boys and 1·8 per cent. of girls are returned as having very poor nutrition; in the group "Specials," 10·4 per cent. boys and 2·1 girls. Of the "Special" cases information as to the infantile feeding was obtained in 74, and of these 51 were entirely breast-fed and 23 artificially reared. Of the 51 cases 13 were puny, and of the 23 artificially fed 9 showed signs of imperfect nutrition. Among the children in the "Entrants and Leavers" classes, information was obtained about 503, of whom 350 were reared entirely on the breast; of these 350, 58 were badly nourished or showed signs of rickets; of the 153 who were artificially fed, 31 showed similar disabilities. Dr. Rolleston says: "Personally, I should have expected a higher difference between breast and bottle feeding, but it must be remembered that breast feeding is extraordinarily mismanaged." In many cases breast feeding is continued for two years, and in a few for three or four years. It is further noted that the percentage of perfectly nourished children decreases with age, as is also, by the way, the case with the percentage of perfectly clean children. In discussing the question of mental deficiency Dr. Rolleston reports, with regard to the after-employment of such children, that the best results are obtained in agriculture, and that

they are in some parts of the country much sought after by farmers on account of their docility and the absence of any desire to change their employment or to ask for higher wages. The review of the hygienic conditions of the schools is not very encouraging; three of the schools are stated to be good, but methods of cleansing, water-supply, and lavatory accommodation are in some cases seriously objectionable.

Royal Leamington Spa.—Dr. Edward Burnet's report deals with ten schools and 3320 children, and shows in a striking way the superior administrative efficiency of the small as compared with the large educational areas. Dr. Burnet is also medical officer of health, and therefore able to maintain the closest personal and official relations with all agencies which affect school life. The small number of the schools makes it possible for every department of every school to be visited at frequent intervals, "usually once a week," and also to see cases needing medical certificates or information and advice of various kinds at the public health office between 9 and 10 in the morning. "Twelve months' experience," says Dr. Burnet, "of this early morning's work has convinced me of its very great value. As a result of this the relations between the children, the parents, and myself are most intimate and cordial." No doubt it is due to the establishment of these relations that the report is able to state that "in every instance where remediable abnormal conditions had been pointed out, successful treatment had been adopted." Dr. Burnet also considers that as a direct result of medical inspection, and the direction of parents' attention to classes of defect noticed in school work, the improvement in remediable conditions "has been extended to many who were not at that time [that of medical inspection] of school-attending age." It is to be hoped that due notice will be taken of the sentences which say that "the school should make up for the deficiencies of the home. In none of the schools have I seen the marked presence of soap and clean towels." Facilities for treatment of vision defects, of dental caries, of otorrhœa, and of skin diseases are seriously lacking, and in view of the optimistic report on treatment quoted above one is forced to conclude that these ailments are, in the absence of such facilities, classed as non-remediable. Dr. Burnet recommends that the education authority should arrange for vision defects to be treated by special arrangement with the only resident ophthalmic surgeon.

County of Kent.—The question of mental deficiency is discussed at some length in Dr. W. J. Howarth's report, and a valuable map supplied of the distribution of these children over the county. It is pointed out that mentally defective children are a serious difficulty in county areas, being so few in number that no convenient centre can be arranged for a special day school, the only alternative being a residential institution. As facilities for such special treatment do not yet exist in Kent, exclusion from ordinary schools is not advised unless the cases are of such a nature as to distinctly interfere with efficient administration. There are in the county 338 cases, and 61 others are under observation with special reference to their mental condition; there are some 80,000 children altogether on the rolls, the mental defectives contributing, therefore, about 4·2 per 1000 of the school population. A table of the schools at which such children attend is also given, from which it appears that as a rule not more than one or two children attend in any one department. But in a few cases there are three children, in two cases six, in two cases seven, and in one case 15. Dr. Howarth suggests that so far as counties are concerned State provision of the necessary accommodation is the way out of the difficulty. There were, further, 76 cases of epilepsy, in not a single case of which was it possible to obtain special treatment. Here, again, is a strong case for State provision, as practically nothing is done for this class of case anywhere. Statistics are given of the total number of defects requiring treatment in 1909 and 1910, and the total number which obtained it, but inasmuch as these include treatment at home and by druggists, and are not checked as to whether the treatment was effective, they have not much weight. Also defects are mentioned, not children, and therefore one is unable to estimate the influence of social circumstances and social groupings so easily as would otherwise be the case.

Lindsey County.—Dr. R. Ashleigh Glegg reports that in the case of 1649 children showing 2079 defects no advice was sought for in over 79 per cent. It must, however, be noted that no special facilities for treatment exist in the area. Reporting on nutrition, 2·6 per cent. boys and 3·14 per cent. girls are returned as "bad nutrition," but out of 6749 children 7 per cent. were markedly anæmic and 14 per cent. anæmic in a lesser degree. These two sets of figures appear contradictory. Dr. Glegg urges the necessity of definite education on the subject of choice of food and cookery. In an appendix codes of instructions and regulations for the guidance of the assistant medical inspector are given, as well as the forms used in connexion with medical inspection and for giving information in regard to infectious diseases.

County of Essex.—Dr. H. W. Sinclair presents an interesting report very fully supplied with useful statistical tables. In certain schools children with ringworm are allowed to attend if (1) the whole of the hair is cut very short; (2) the affected portion of the head is daily covered with ointment; and (3) a clean cotton cap is worn, covering the whole head and securely fastened. At Loughton, Buckhurst Hill, and Woodford experimental dental clinics have been started.

County of Hertfordshire.—A useful analysis is given in table form of the differences in defects found in rural and urban children. Some are very marked. The proportion of eye defects (rural to urban) is, for instance, 84 to 52 for all children, for boys 109 to 61, and for girls 137 to 103. The defects in girls' vision are worse than the boys' at each age both in urban and rural areas. Open-air classes are held throughout the county in summer. Mr. F. E. Fremantle hopes to extend their use.

Dunfermline.—An interesting account, with photographs, is given of the school clinic started in February, 1910. Two rooms have been set apart for this in the institutions of the Carnegie Dunfermline Trust, and the sending of cases to the clinic is in the hands of private practitioners, who send what they consider suitable cases after they have been medically inspected and referred to them, in the first instance, by the inspector. Mr. J. C. Bridge urges the establishment of an open-air recovery school.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns, having an estimated population of 16,157,797 persons in the middle of this year, 7781 births and 5266 deaths were registered during the week ending Sept. 23rd. The annual rate of mortality in these towns, which had steadily decreased from 21·2 to 17·1 in the four preceding weeks, further declined to 17·0 per 1000 in the week under notice. During the first twelve weeks of the current quarter the annual death-rate in these towns averaged 16·7 per 1000, while in London during the same period the mean annual death-rate did not exceed 15·5 per 1000. The recorded annual death-rates in the 77 towns last week ranged from 5·3 in Handsworth (Staffs), 6·1 in Hornsey, 8·3 in King's Norton, and 10·2 in Tottenham, to 24·5 in Gateshead, 25·7 in Liverpool, 26·9 in Burnley, and 30·0 in Stockton-on-Tees. The 5266 deaths from all causes in the 77 towns last week were 24 fewer than the number returned in the previous week, and included 1559 which were referred to the principal epidemic diseases, against numbers decreasing from 2900 to 1701 in the four preceding weeks. Of these 1559 deaths from the principal epidemic diseases, 1377 resulted from infantile diarrhœa, 61 from whooping-cough, 42 from diphtheria, 40 from enteric fever, 26 from measles, and 13 from scarlet fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases last week was equal to 5·0 per 1000, against 6·7 and 5·5 in the two preceding weeks. The deaths of infants under 2 years of age attributed to diarrhœal diseases in the 77 towns, which had steadily decreased from 2714 to 1540 in the four preceding weeks, further declined to 1377 last week, and caused the highest annual death-rates of 9·3 in Northampton, 9·9 in Hull, 10·0 in Stockton-on-Tees, 10·3 in Burnley, 10·4 in Swansea, and 11·4 in Middlesbrough. The deaths referred to whooping-cough, which had been 58, 58, and 55 in the three preceding weeks, rose last week to 61, and included 15 in London, 4 in Sunderland, and 3 each in Birmingham, Bury, Manchester, Leeds, and Hull. The fatal cases of diphtheria, which had been 35, 40, and 27 in the

three preceding weeks, rose to 42 last week; 13 deaths were recorded in London, 5 in Liverpool, 3 in Bristol, and 3 in Stoke-on-Trent. The deaths attributed to enteric fever, which had steadily increased from 11 to 41 in the five preceding weeks, were 40 last week, and of these 12 were registered in London, 3 in Liverpool, and 3 in St. Helens. The deaths referred to measles, which had declined from 59 to 25 in the five preceding weeks, numbered 26 last week, and included 7 in London and its suburban districts, 3 in Liverpool, and 3 in Salford. The 13 fatal cases of scarlet fever were equal to the number returned in the previous week; 4 deaths were registered in London, 2 in Bristol, and 2 in Stoke-on-Trent. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1327, 1349, and 1454 at the end of the three preceding weeks, had further increased to 1532 on Saturday last; 240 new cases of this disease were admitted to these hospitals during the week, against 168, 217, and 264 in the three previous weeks. These hospitals also contained on Saturday last 853 cases of diphtheria, 225 of whooping-cough, 142 of enteric fever, and 86 of measles, but not one of small-pox. The 1356 deaths from all causes in London last week were 33 in excess of the number in the previous week, and included 113 which were referred to diseases of the respiratory system, against 95 and 97 in the two previous weeks. The deaths attributed to different forms of violence in the 77 towns, which had been 171 and 169 in the two preceding weeks, further declined last week to 160, and 326 inquest cases were registered. The causes of 32, or 0·6 per cent., of the deaths registered in the 77 towns during the week under notice were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death last week were duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, Portsmouth, and in 47 other smaller towns. The 32 uncertified causes of death in the 77 towns last week included 4 in Birmingham and 2 each in London, Liverpool, St. Helens, Manchester, Salford, and Preston.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns, having an estimated population of 1,710,291 persons in the middle of this year, 835 births and 547 deaths were registered during the week ending Sept. 23rd. The annual rate of mortality in these towns, which had been 17·2, 16·4, and 15·7 in the three preceding weeks, rose to 16·7 per 1000 during the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these Scotch towns averaged 15·2 per 1000, and was 1·5 per 1000 below the mean rate during the same period in the 77 large English towns. The annual death-rates in the Scotch towns last week ranged from 13·0 and 14·6 in Paisley and Greenock to 19·0 in Dundee and 20·3 in Perth. The 547 deaths in the eight towns last week were 31 in excess of the number in the previous week, and included 95 which were referred to the principal epidemic diseases, against 105 in each of the two preceding weeks; of these 95 deaths, 65 resulted from diarrhœa, 12 from whooping-cough, 5 from measles, 5 from scarlet fever, 5 from diphtheria, and 3 from enteric fever, but not one from small-pox. The mean annual death-rate from these epidemic diseases in the eight towns last week was equal to 2·9 per 1000, and was 2·1 below the death-rate from the same diseases in the 77 large English towns. The deaths attributed to diarrhœal diseases, which had been 113, 78, and 80 in the three preceding weeks, declined to 65 last week, and included 59 of infants under two years of age; 36 deaths were recorded in Glasgow, 11 in Dundee, 10 in Edinburgh, and 4 in Aberdeen. The deaths referred to whooping-cough, which had been 10, 12, and 8 in the three preceding weeks, rose to 12 last week, and included 5 in Aberdeen, 3 in Glasgow, and 3 in Dundee. The 5 fatal cases of measles, which were slightly in excess of recent weekly numbers, were all recorded in Glasgow. The deaths from scarlet fever, which had been 2 in each of the two preceding weeks, rose to 5 last week, of which 3 occurred in Glasgow. The deaths attributed to diphtheria, which had been 5, 8, and 10 in the three previous weeks, fell last week to 5, and included 2 in Glasgow. The 3 fatal cases of enteric fever were all registered in Glasgow. The deaths referred to diseases of the respiratory system, which had been 24, 53, and 41 in the three preceding weeks, rose to 57 last week, but were 7 below the number returned in the corresponding week of last year. Of the 547 deaths from all causes in the eight towns last week, 166, or 30 per cent., were recorded in public institutions, and 22 deaths were attributed to different forms of violence. The causes of 21, or 3·8 per cent., of the deaths in the eight towns last week were not specified or not certified; in the 77 English towns the proportion of uncertified causes last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,149,495 persons in the middle of this year, 514 births and 444 deaths were registered during the week ending Sept. 23rd. The annual rate of mortality in these towns, which had been 22·1 and 19·4 in the two preceding weeks, rose to 20·4 per 1000 in the week under notice. During the first 12 weeks of the current quarter the annual death-rate in these Irish towns averaged 18·3 per 1000; in the 77 English towns during the same period the mean annual death-rate was equal to 16·7, whilst in the eight Scotch towns it did not exceed 15·2 per 1000. The annual death-rate last week was equal to 22·6 in Dublin (against 15·6 in London), 20·2 in Belfast, 19·7 in Cork, 12·8 in Londonderry, 23·1 in Limerick, and 24·7 in Waterford; whilst in the 16 smallest of these Irish towns the mean annual death-rate did not exceed 14·8 per 1000. The 444 deaths from all causes in the 22 Irish towns were 16 in excess of the number returned in the previous week, and included 122 which were referred to the principal epidemic diseases, against 130 and 134 in the two previous weeks; of these 122 deaths, 111 resulted from diarrhœal diseases, 5 from whooping-cough, 3 from scarlet fever, and 3 from enteric fever, but not one from small-pox, measles, or diphtheria. These 122 deaths from the principal epidemic diseases were equal to an annual death-rate of 5·5 per 1000. The mean rate from the same diseases in the 77 English towns was equal to 5·0, while in the eight Scotch towns it did not exceed 2·9 per 1000. The deaths attributed to diarrhœal diseases, which had been 141, 117, and 121 in the three preceding weeks, declined last week to 111, and included 106 of infants under two years of age; 48 deaths occurred in Belfast, 46 in Dublin, and 5 in Cork. The 5 fatal cases of whooping-cough were equal to the number in the previous week; 3 deaths were registered in Dublin and 2 in Belfast. The 3 deaths from scarlet fever were also equal to the number in the preceding week and were all recorded in Dublin. The 3 fatal cases of enteric fever, all of which occurred in Dublin, were slightly in excess of recent weekly numbers. The deaths referred to diseases of the respiratory system, which had been 31, 44, and 42 in the three preceding weeks, were 43 last week. Of the 444 deaths from all causes in the Irish towns last week, 104, or 23 per cent., were recorded in public institutions, and 6 deaths were attributed to different forms of violence. The causes of 16, or 3·6 per cent., of the deaths registered in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes of death in the week under notice did not exceed 0·6 per cent. in the 77 large English towns, but was equal to 3·8 per cent. in the eight Scotch towns.

THE SERVICES.

1ST LIFE GUARDS.

Surgeon Lieutenant-Colonel Benjamin W. C. Deeble retires on retired pay (dated Sept. 27th, 1911).—Surgeon Captain Robert M. Cowie from the 2nd Life Guards to be Surgeon-Major (dated Sept. 27th, 1911).

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel J. Meek, at present holding medical charge of the military hospital at Cosham, has been selected for the higher rate of pay under Article 317 of the Royal Warrant. An exchange of positions on the roster for service abroad has been sanctioned by the War Office between Lieutenant-Colonel J. H. Daly, serving at Limerick, and

Lieutenant-Colonel F. W. G. Gordon-Hall, holding medical charge of the military hospital at Glasgow. Major F. J. Brakenridge has been appointed a Specialist in State Medicine by the Army Council. Major L. P. More, on return from a tour of service in the Northern Army, India, has been detailed for duty in the Southern Command. Major G. T. K. Maurice has been transferred from the military hospital, Bulford, to Tidworth Park, Salisbury Plain. Major T. H. J. C. Goodwin, D.S.O., has arrived home on leave of absence from the military hospital, Quetta. Major C. R. Evans has been detailed for a tour of service in the Maltese Command during the coming trooping season, in succession to Major J. A. Hartigan, who has been ordered to proceed to North China. Major J. F. Burke has been selected for appointment as Medical Officer in Charge at Penally. Captain J. H. Brunskill has been appointed Specialist in Bacteriology by the Army Council. Captain A. J. Hull, on completion of a course of instruction for promotion to the rank of Major, has been appointed for duty in the London District. Captain F. W. W. Dawson has been transferred from Ticknock Camp to Dublin. Captain C. G. Thomson, on return to duty from leave of absence, has been posted to the Military Hospital at Edinburgh. Captain R. L. V. Foster has taken up duty in the Devonport District. Captain F. A. McCammon has arrived home on leave of absence. Captain H. H. J. Fawcett has been selected for appointment as Adjutant of the Home Counties Division School of Instruction, Royal Army Medical Corps. Captain T. W. Browne has been granted an extension of leave. Captain S. M. W. Meadows has been appointed to the Tidworth District, Salisbury Plain. Captain R. H. Bridges has taken up duty at the Royal Victoria Hospital, Netley. Lieutenant C. G. Sherlock has been transferred from Rawal Pindi to the Station Hospital at Lahore. Lieutenant P. S. Tomlinson from the Military Hospital at Tidworth Park, Salisbury Plain, has taken up duty at Wedgenock Park.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel W. Vost has been appointed to officiate as a Civil Surgeon of the first class during the absence on leave of Lieutenant-Colonel J. Morwood. Lieutenant-Colonel B. B. Grayfoot has relinquished charge of the duties of Deputy Sanitary Commissioner, Sind Registration District. Major E. S. Peck has been granted six months' leave of absence home from India. Major G. H. Stewart has taken up duty as Deputy Sanitary Commissioner in Burma in succession to Major N. P. O'Gorman Lalor. Major A. Fenton, on transfer to Rangoon, has been succeeded as Civil Surgeon of the Mandalay District by Major P. Dee on return from leave. Major F. A. L. Hammond has been appointed Civil Surgeon at Bassein in succession to Captain E. A. Walker. Captain E. Owen Thurston, on return from furlough, has been appointed to officiate as Professor of Surgery in the Medical College, Calcutta, during the absence on leave of Major C. Stevens. The services of Captain E. Bisset have been placed temporarily at the disposal of the Government of the United Provinces for plague prevention duties. Captain S. B. Mehta has been granted privilege leave of absence for 30 days. Captain F. P. Mackie has been appointed to officiate as Civil Surgeon of Farrukhabad. Captain S. C. Pal, at present holding medical charge of the depôts at Fatehgarh, has been appointed to officiate as Civil Surgeon to the Fatehgarh District in succession to Captain H. R. Nutt, transferred to Ayamgarh. The services of Captain J. Morison have been replaced at the disposal of the Government of India. Captain F. W. Sumner has been transferred from Bijnor to Shahjahanpur to officiate as Civil Surgeon in succession to Lieutenant-Colonel J. Morwood, who has been granted leave of absence.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant John R. R. Trist is confirmed in his rank.

FRENCH NAVAL DISASTER.

The sympathy of England, in common with that of every other civilised country, was spontaneously offered to the French nation when the terrible disaster which occurred to the battleship *Liberté* became known. The vessel caught fire in Toulon Harbour in the early morning of Sept. 25th, and after a series of explosions broke in two and sank.

Correspondence.

"Audi alteram partem."

THE NATIONAL INSURANCE BILL.

To the Editor of THE LANCET.

SIR,—Before the profession pledges itself to any particular course in regard to the above, I think a great deal more consideration should be given to the various points than there has been up to now, and it appears to me that the interests of medical men at present holding club appointments have not been safeguarded or even considered. These appointments have in some cases been held for generations in the same family, in other cases they have been bought by the payment of substantial sums. The appointments are now it seems to end without compensation, and the work and its emolument are to be thrown open to every practitioner in the district, and even out of it, and every one assured to have the "free choice of a doctor."

The Chancellor offered to relieve the profession acting under the Bill of the expense of drugs and to grant a very much higher scale than that at present in force in contract practice. His offers have been declined, and there has been no stipulation for an enhanced, reasonable, but adequate minimum scale. It is almost past belief that it has been seriously proposed that the whole matter of the payment for medical services shall be left an open question, to be arranged by medical men in each district with the Local Health Committee. The control of Friendly Societies has been bitterly opposed, yet at the same time the control by the Local Health Committee is accepted.

I can only point out that the printed Bill has apparently never been read, for the Health Committees are to be constituted as follows: one-third by members of local sanitary authorities, one-third elected by Friendly Societies, one-third elected by the assured workmen. Health Committees thus constituted would naturally have no sympathy for the interests of medical men, and would be more difficult to deal with even than with the great Friendly Societies. Medical men, knowing the methods of local sanitary authorities in the past, will agree to this. Again, it is inconceivable that medical men in each district are to be left to bargain with committees of laymen, two-thirds of whom are working men wishful to do the best for their society. What would it mean? Different scales in different districts; the present club practices would be split up among many practitioners, each appointment being worth next to nothing, the most capable and better qualified medical men, of course, declining to have anything to do with the working of the Act.

The "free choice of a doctor" is in the opinion of everyone who has had experience certain to lead to an immense amount of malingering, and the doctor who gives certificates freely will get the practice, and the honest, conscientious practitioner will lose it. There will be temptations which should not be put before struggling professional men. The attitude taken up in some quarters is, I think, a mistake, as the suggestion of a strike is an insult to the profession and also impracticable; the non-safeguarding the interests of club doctors who have faithfully carried out work under extreme disabilities is unfair, and there will be humiliation brought to every medical man who is reduced to squalid bargaining with laymen as to his remuneration.

With an intimate knowledge of all ranks of the profession, and looking at the matter from an unbiased and outside point of view, I can only urge that the "free choice of a doctor," the splitting up of the work of the clubs among many, with the question of remuneration not settled by the Bill but left to irresponsible bodies of laymen, to be fixed upon after consultation with keenly competing practitioners, will destroy the profession in the eyes of the public, and in the interests of the State and the well-being of the people would be absolute madness.

It may be asked, Is there an alternative? Is it possible to secure the best medical service to the people without undue expense to the State, and with honour, and sufficient emoluments to medical men? I say "Yes," in one way, and in one way only, by a "State Medical Service," every

man appointed to have the right to the title of State Medical Officer. That in itself would be a valuable asset. The members of the profession holding club appointments, being otherwise properly qualified, should in the first instance be appointed in country districts, and where suitable; but gradually in large towns there should be established clinics, with whole-time medical officers, admitted to the Service by examination, with good expectations of promotion, and in old age a pension.

The control of Friendly Societies has been objected to. I have shown that the control of a Health Committee would be practically the same thing, or worse, yet it is perfectly certain that there must be control, and I venture to say that such control should only be in the hands of a Secretary of State, responsible to Parliament. Friendly Societies and Health Committees will be certain to be interested, and their advice will in many cases be valuable, but I think it will be agreed that they should have no power over medical officers of the State, who should be called upon to do their duty without fear or favour.

It must be remembered that under the Bill the State will be very largely interested, as also every class of employer and employed, and it must be essential to the financial success of the Act that only those assured persons who are really disabled by ill-health are allowed to obtain benefit. On the Friendly Societies and Health Committees will be cast the duty of dispensing the weekly payments, and they will have to depend, in the first instance, on the certificates of the medical officers attending the assured.

I yield to no one in my belief in the honesty of the great mass of the working classes. I have seen in numberless cases the greatest anxiety to get back to work, but I have also been obliged to come in contact with many cases of exaggerated claims or absolute malingering. Seeing that the Act will apply to a much greater number of persons than ever were dealt with under the Workmen's Compensation Act, it is impossible to ignore the fact, that there must be a large amount of malingering under the National Insurance Act, unless provision is made for dealing with it from the very beginning. Medical officers with every desire to do right will have, in any case, a delicate duty to perform in discriminating between just and unjust claims, and they should be subjected to no outside influence which might by any stretch of imagination be supposed to bias their judgment.

Again, the profession is not only interested in medical officers attending the employed. There must be medical men appointed as referees to act when the condition of an insured person is in dispute, and these referees, if they are to retain the confidence of the public, must be absolutely unbiased and above any sort of influence, exerted by either Friendly Societies desirous of reducing claims on their funds, or by assured persons exaggerating their disability or inventing it.

I feel sure that medical officers can only obtain a position, unsubjected to outside influence, by appointment by the State, and controlled only by a State department, the head of which is responsible to Parliament.

I am, Sir, yours faithfully,

South Hampstead, Sept. 25th, 1911. ALBERT BENTHALL.

CONDENSED MILKS IN THE INFANT DIETARY.

To the Editor of THE LANCET.

SIR,—Whilst agreeing with your very timely and wholesome condemnation of the low grade machine-skimmed condensed milks as foods for children, I fear the casual reader will mistake your remarks for an attack on condensed milk in general. Milk, to be a desirable food, must contain all its natural fat, but that is not all; it must also be clean. The commodity sold by the itinerant milkmen is never very clean and often revoltingly dirty, as was shown by the late Mr. Ernest Hart.[1]

Some of the pasteurised milk sold is unfit for food by the time it reaches the consumer. In January of last year a sample of pasteurised milk was seized by the authorities of St. Marylebone and found to contain 22,415,000 germs per cubic centimetre, with other etceteras, including pus. The high-grade condensed milks sold in every grocer's shop throughout the country are clean, and in this lies their value when compared with the fresh milk ordinarily sold. Many more children have been killed by filthy fresh milk than ever contracted rickets from being fed on Swiss or other good brand of full-cream condensed milk. It is one thing to diagnose rickets in a child fed on condensed milk, but quite another to prove that the condensed milk caused the rickets.

The late Dr. H. Ashby wrote[2]—

> I do not doubt that a good condensed milk is better and more wholesome for the infant than much of the so-called fresh milk which is retailed to the poorer classes in our large cities; and it is a useful substitute for fresh milk when, as often happens in the summer, the milk-supply is swarming with micro-organisms.

In a properly managed condensery all the milk employed is obtained from carefully selected and regularly inspected farms; after the addition of the sugar it is condensed in a vacuum pan at a temperature of 120° F. Surely this is far less likely to injure milk than the rough and ready sterilisation to which fresh milk is subjected in the domestic saucepan. My own five children began to take Swiss milk when only a few days old, and none of them have shown any signs of rickets. I have seen hundreds of other people's children similarly fed, and equally healthy. By all means let us order fresh milk whenever we can do so with confidence, but not unless we can truthfully say that fresh milk is clean milk.

I am, Sir, yours faithfully,

London, S.E., Sept. 23rd, 1911. JOHN ROUND.

To the Editor of THE LANCET.

SIR,—At a general meeting of the Condensed Milk Clearing House and Defence Association held this day, at which all the principal manufacturers and importers of skimmed milk (representing 95 per cent. of that trade) were present, the recent report of Dr. Coutts to the Local Government Board was considered, also the article which appeared in your issue of Sept. 16th.

The manufacturers and dealers in skimmed condensed milk have no desire to represent the article as other than it is. They label it "machine skimmed milk" in accordance with the requirements of the legislature, and they do not desire to represent that it is in ordinary cases a suitable food for young infants; but they strongly resent the suggestion that it should be labelled "unfit for infants' food," as they consider that this would convey a false impression that it is unwholesome, and it would unnecessarily injure the sale of a useful and cheap article of food, which is a great boon to the working classes.

The meeting considered the wording proposed by the writer of your leading article and they desired me to express their thanks for the suggestion, not only because it conveys in an unobjectionable form all the Local Government Board report proposes, but it defines very happily the period during which condensed milk should be avoided in infant feeding. The following resolution was unanimously passed and will immediately be carried into effect:—

> Resolved that all labels on tins of machine-skimmed condensed milk in addition to the words "machine skimmed" as required by the legislature shall bear in clear type the words "not a substitute for mothers' milk" in accordance with the suggestion made by THE LANCET.

I am, Sir yours faithfully,

U. A. CLEEVE, Chairman.

69, Mark-lane, London, E.C., Sept. 26th, 1911.

To the Editor of THE LANCET.

SIR,—I have read with considerable interest Dr. F. J. H. Coutts's report to the Local Government Board on condensed milk and your leading article thereon. I take it that this represents the medical view of condensed milk, but I think the commercial side of the question is also worthy of your consideration.

The condensing of machine-skimmed milk is the utilisation of the otherwise waste product of butter-making. Skimmed milk can only be used for the feeding of pigs, preparation of skimmed cheese, making of milk-powder or machine-skimmed milk, and of these the latter is probably

[1] Brit. Med. Jour., vol. i., 1897, p. 1167.
For details of the bacteriological and chemical examination of various brands of condensed milk see "Condensed Milk," by H. Dold and E. Garrett, *Journal of Royal Institute of Public Health*, 1910, vol. xviii., p. 294.

[2] Ashby, Health in the Nursery, p. 101.

the most valuable and the most easily assimilated form. All the manufacturers of condensed skimmed milk are butter manufacturers, and derive the bulk of their profits from the butter part of the undertaking.

Dr. Coutts states that he finds there is a considerable consumption of machine-skimmed milk for infant feeding, but he gives no figures whatever to prove his contention; in fact, the only figures given show that the total amount of infants fed on condensed milk is only 3·1 per cent. in Brighton (all kinds), 8 4 per cent. in Derby (all kinds), and in Salford 0·4 per cent. (skimmed only).

The manufacturers of machine-skimmed milk are convinced that only a very small part—probably only 1 per cent.—of their condensed milk is used as a sole food for infants, and every indirect test (since a direct test is impossible) tends to confirm this view. The other 99 per cent. are used for ordinary household purposes where the absence of fat is either unimportant or even desirable. It is nearly always used undiluted, and in a form which Dr. Coutts admits to be an unfavourable medium for the development of many bacteria. If it were correct, as stated by the Select Committee on Food Adulteration, that machine-skimmed milk was largely used for infant feeding, the effect of the notification on the label that the milk was machine skimmed should have lessened the consumption, but, on the contrary, it increased. It increased still more when a few years ago all the manufacturers who are members of the Condensed Milk Clearing House Association voluntarily decided they would henceforth put on their labels an indication that machine-skimmed milk was not suitable as sole food for infants, and such increase would not have taken place had any large proportion been used for this purpose.

The manufacturers of this article would probably have no objection whatever to stating on their labels that the milk is "not a substitute for mothers' milk," as suggested by you, since they have never sold it for that purpose; but the words which are often suggested, viz., "unfit for infants," are objected to, as it is felt that nine-tenths of the persons who use this milk would assume that what was unfit for infants was also unfit for children and adults, and they would not be able to understand that the unfitness lies merely in the absence of fat, and that the age of the infant is a governing factor. This same article which is nutritively insufficient for a child of 3 months becomes, for a child of 3 years, an excellent food if spread on bread and butter, and, in the case of the poorer classes where cheapness is a leading consideration, it is in this way almost an ideal food. It is certainly better than jam or golden syrup, and cheaper than meat; it contains more proteids than bacon and nearly as much as fat mutton or other meats. The superiority of machine-skimmed condensed milk, used as suggested, over potted "delicacies" is so evident that it is remarkable that medical men have not more often advised it as an item in the dietary of poorer households.

I think it is scarcely fair to conclude your article with the words "the State should step in ..... to render more difficult the commercial game of making things appear what they are not," thus suggesting that the manufacturers of machine-skimmed milk are endeavouring to foster its sale by misleading the public. I believe I am right in saying that they are the only manufacturers who describe as fully the article sold by them, and who point out the uses to which it should *not* be put. Your righteous condemnation of certain commercial methods would apply better to many of the patent foods which are advertised "for infants and invalids," and which are even less suitable than machine-skimmed condensed milk for the feeding of infants, at any rate so far as proportion of fat is concerned. I would refer you to Dr. R. Hutchison's book on "Food and the Principles of Dietetics," and many of your readers who condemn machine-skimmed milk would be surprised to find that patent foods they have recommended are even more incomplete.

I venture to say that no action should be taken with regard to the very limited sale of machine-skimmed condensed milk for infant feeding unless the same tests be applied to all patent or infant foods—whether sold under a fancy or proprietor's name or otherwise—and if a percentage of only ½ per cent. or 1 per cent. of butter fat be a reason for labelling 100 tins of this milk "unfit for infant food" (of which only one is likely to be used for that purpose) that any other so-called "infants' food" which contains too low a percentage of fat shall be labelled in the same way.

I am, Sir, yours faithfully,

CHAS. LEHMANN,
Director, R. Lehmann and Co., Limited.

Monument-street, E.C., Sept. 20th, 1911.

*** We publish this letter with pleasure. The policy of the members of the Condensed Milk Clearing House Association is obviously an upright one, and no praise is needed from us for the honest label which they agreed to adopt. The manufacturers do not object to the use of machine-skimmed milk being discouraged as a substitute for mothers' milk and put words to that effect upon the label. We have already agreed that machine-skimmed condensed milk, apart from its fat, is a valuable food, and our correspondent rightly draws attention to its useful applications in this direction. We agree, also, that there are several preparations upon the market masquerading as foods suitable for the suckling, which are totally unfit for the purpose, not only because they show a deficiency of fat, but because in several of them raw starch is present. On the other hand, some at least of these foods are clearly intended to be used as adjuvants to the milk diet, the directions on the label clearly stating that milk is to be added to the food before it is ready for the infants' use. Such a direction would, of course, appear superfluous in the case of a machine-skimmed product called milk. As a rule, however, the price asked for such foods is a good deal more than that commonly demanded for a tin of machine-skimmed milk. The great cheapness of skimmed condensed milk, which after all, as our correspondent points out, is a by-product in butter-making, is a strong reason for protecting the very poor from ignorantly using it to fulfil cheaply an object which it never can fulfil. The whole question of the sale of infant foods for rich and poor alike calls for a controlling measure to protect the public from acting upon statements which misrepresent physiological facts.—ED. L.

DESICCATED ANTIVARIOLOUS VACCINE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 24th, 1910, there is an annotation, "The Influence of Age and Temperature on the Potency of Diphtheria Antitoxin." This may not have interested the most of your readers, who are within easy reach of manufactories of sera, but for a few thousands who are not so situated it is extremely interesting. In a previous number (May 21st) you had already published "A Note on Desiccated Culture Media," which was, I am sure, welcomed by many of us outsiders. With the same object in view—i.e., to be of service to practitioners abroad—I would call attention to an article published in the *Bulletin de la Société de Pathologie Exotique*, séance du 21 Juillet 1909, tome 2de, No. 7, par Pierre Achalme et Marie Phisalix, entitled "Contribution to the Study of the Preservation of Vaccine in Tropical Countries." The production (manufacture) of this desiccated vaccine appears to be simple, and its activity is guaranteed for one year at least, a future communication being promised as to longer duration. I am surprised that some institute has not taken up its manufacture. It would be a boon to many doctors and others.

In THE LANCET of Nov. 26th, 1910, in an article on "Sanitation in India," attention is called to the difficulty in preserving lymph, even with the use of thermos flasks. In the *Medical Record*, N.Y., May 14th, Dr. Heiser, director of health, at a meeting of the Far Eastern Association of Tropical Medicine, says that glycerinised lymph loses its efficacy in ten days. Previously, in the same periodical, another practitioner made a similar observation. Even in Peru, where there has been a vaccine institute for more than 12 years, there is an extensive field for the use of desiccated vaccine. Some portions of the Republic are more than a month's journey from the capital; many others have no doctor, and even if

tubes of glycerinised lymph are sent the tubes are not used at once, or they may be opened and kept open, and so used for days. In fact, if I were asked, Has small-pox diminished since the establishment of the vaccine institute? I should hesitate in giving an answer. Reliable statistics for years before or after the foundation of the institute are not obtainable. This is perhaps not much to be regretted, as there is a tendency to look askance at statistics, as if one were trying to prove what is untrue.

Here we have not yet arrived at that ultra stage of civilisation which produces antivaccinationists. What we have to contend with are carelessness, curious ideas, and inefficient vaccination. As to curious ideas—immunity to small-pox is conferred by being born in a year of a solar eclipse or a leap year, or being a seventh child, or other equally mysterious "secret of nature"—quite unknown to doctors, but an open book to *sages femmes*. There is another obstacle in the way of vaccination. A rumour gets about that the vaccine is "infested." The people then refuse to have their children vaccinated. I tried to find out what was meant by "infested," but could get no proper explanation. The word had been heard and the people were terrorised. At first I thought it meant that the vaccine was contaminated with syphilis. Against this was the fact that I had never seen a case of vaccine syphilis, and that, 40 or 50 years ago, syphilis might be said to be non-existent here. Within the last 30 years or so this is being remedied (?)—civilisation and its apparently almost necessary accompaniment, syphilisation, have made considerable advances. After puzzling over the "infested" vaccine for some time I came to the conclusion that it meant that the vaccine would cause small-pox. I came to this conclusion as I observed that this rumour got about particularly when there was already an epidemic of variola and one was advising the people to get their children vaccinated. As the children had been visiting or playing with other children convalescent from the disease, it was not strange that they got the disease; if they had been vaccinated two or three days previously, naturally the vaccination was blamed as being "infested."

With reference to inefficient vaccination:—Is it to be expected, especially amongst the poor, that they will take the time or trouble to have their children vaccinated three or four times, seeing that it has not taken? No, they will naturally ascribe the accident to one or other of the above-mentioned "secrets of nature." Many of these evils would disappear if one had a thoroughly reliable vaccine such as this "desiccated" seems to be. As it would be easily carried and would not require constant renewal it might be constantly taken in ocean-going passenger steamers, so, perhaps, saving some lives and shortening quarantines. Explorers might also find it useful for vaccinating their baggage carriers before entering suspected country.

I am, Sir, yours faithfully,

Arequipa, Peru. J. DICKSON HUNTER, M.D. Edin.

INDIGESTION AND CATARRH OF THE THROAT AND NOSE.

To the Editor of THE LANCET.

SIR,—Some years ago I had occasion to point out in your columns that not all coughs and colds were related to disorders of the lungs; indeed, I showed conclusively that cough as a symptom was more often not associated with lung trouble. I pointed out that taking the respiratory tract as a whole and dividing this into the upper respiratory tract and the lower respiratory tract, or all that portion above and below the cricoid cartilage, a very large percentage of cases of coughs were due to affections of the upper respiratory tract, a very few in reality due to affection of the trachea and lung proper. It followed from this that every physician who is called upon to diagnose and treat coughs should be an expert rhinologist and laryngologist.

The amount of medicine that is annually swallowed by patients attending the out-patient departments of our hospitals, who apply for the relief of coughs, is appalling and regrettable. Most of these cases are due to affections of the upper respiratory tract requiring some local application of an astringent or soothing nature. It is unreasonable to conceive that nature would expose a vital organ such as the lung to all the petty troubles and grievances due to the ever-changing conditions of the atmospheric environments. The same argument applies with equal force to the stomach. Indigestion is one of the commonest of troubles, yet in but few cases is the stomach itself at fault.

The alimentary tract extends from the lips downwards, yet the possible causes of indigestion existing in the mouth, nose, and pharynx are mostly ignored. As one who is interested in diseases of the upper respiratory and alimentary tracts one is struck with the quite common associations of catarrh of the upper respiratory tract and indigestion. The relation of these two functions is close and intimate. The respiratory tract crosses the alimentary tract at a point in the pharynx, and both the lungs and stomach are open and liable to be infected and disturbed by abnormal conditions of either the mouth or nose. Septic conditions of the mouth, teeth, tonsils, and other glands, and catarrhal conditions of the nose and post-nasal space are quite common affections in these temperate latitudes.

In post-nasal catarrh and catarrh of the pharynx large quantities of unhealthy germ-laden mucus find their way into the stomach and are a common associate of indigestion of the fermentative or flatulent type. A careful examination of the upper respiratory tract and upper alimentary tract in all cases of coughs and indigestion is thus imperatively necessary if a proper diagnosis is to be arrived at. I am, Sir, yours faithfully,

Harley-street, W., Sept. 25th, 1911. MAYO COLLIER.

A QUESTION IN EUGENICS.

To the Editor of THE LANCET.

SIR,—I have read the correspondence under the above heading, and should like to make a few observations on certain points which it raises.

In the first place it is not easy in these days to sympathise with the writer who thinks that morality is threatened by the campaign against the propagation of degenerates. One understands that society is bound to take care of its "undesirables," but surely there is something morbid in the idea that in this matter "cure" is better than prevention, or that the abolition of some few of the more conspicuous hereditary ailments will leave the philanthropist without a sufficient field for the exercise of his benevolent instincts. Like the parallel argument that to destroy poverty would be to abolish the Christian religion because paupers are required to incite to charity in this world, and to populate the Kingdom of Heaven in the next, the theory may be suspected to be one of those familiar devices under which those who have a vested interest in error are wont to disguise their resistance to salutary change. In saying so I do not, of course, question the sincerity of the writer, who is inclined to look upon eugenists as subverters of morals. Many bad theories have been recommended with the most praiseworthy motives. Many good men have "done harm with the best intentions."

Still more amazing is the opinion favoured by another of your correspondents, which upholds the unrestricted multiplication of the feeble-minded on the ground that the individual, not the race, is the proper subject of moral solicitude. We have hitherto been under the impression that highest reverence is due to the unseen benefactors whose disinterested labours have prepared a happier future for mankind. But this, it seems, is a mistake. Duty is owed only to contemporaries, whose comfort is to be promoted however much it may conflict with the well-being of future generations. The latter may perhaps be entitled to some measure of consideration when to give it would not entail the smallest sacrifice on the part of actually existing people. Thus viewed "in the dry light of intelligence," and apart from sentiment, the doctrine appears so preposterous that it would have been unnecessary to refer to it were it not that the attitude of a good many sociologists towards this question of degeneracy seems to lend it a measure of countenance. Like the fear for morality it is, however, rather a pretext than a creed, and will not, it may be hoped, seriously affect the judgment of the future upon the philanthropy of our age.

A third theory, referred to in your columns—the notion, viz., that in suppressing degeneracy we may be eliminating genius—though in the past supported by high authority, is now admitted to be based very largely upon error. The idea,

e.g., of a connexion between genius and epilepsy, never very widely favoured by physicians, may now be regarded as definitely disproved. Nor are the weak and diseased tendencies, of which genius has been actually convicted, of a kind which any sensible person would regard as prohibitive of marriage. In a quite different category, however, from these is the case in which an individual who possesses genius may have constitutional proclivities which make it likely that his children, if he had any, would be insane or tuberculous or epileptic. Under such circumstances the possibility that genius might be transmitted would be no excuse for the physician who should recommend marriage; nor, *a fortiori*, could the fact that genius has had a tendency to occur in a family which has produced many lunatics be considered to palliate the marriage of a member of such a family who was himself neither a genius nor quite sound mentally. It is significant in this connexion that none of the distinguished men who have advocated the degeneration theory have even hinted that it is wrong to discourage "philoprogenitiveness" in degenerates. It has remained for your correspondent to make the suggestion.

Not only are some of us living in an antediluvian world, in which contemporary tendencies play no part, but we often seem blind to facts of every-day experience. The facts which I have more especially in view are to be met with at any school-attendance committee meeting in our large cities. There, for their part not a little astonished at the special attention they receive, families present themselves, organised on a basis like this. A father who is a drunkard or epileptic, incapable of steady employment, occasionally picking up a few shillings in the lowest lines of casual labour; a wife supporting the family by her earnings; six or seven weak-minded children, who in the necessary absence or frequent confinements of the mother stay at home to do the work of the house. Is this, one is tempted to ask, a fair illustration of the working out of that latest discovery in the higher ethics, the precept, i.e., that we ought to care for the individual and leave the race and the future to look after themselves?

As regards the outlook, were we to judge by the views of some of your correspondents there would indeed be grounds for serious misgiving. For my part I have much confidence in the growth of a saner opinion, of which there are everywhere so many indications, and cannot doubt that, under the pressure of these new ideas, we shall have in the near future a large and wholly beneficent extension of sterilisation as a remedy for the terrible evils from which we at present suffer.

I am, Sir, yours faithfully,

Stoke Newington, Sept. 23rd, 1911. I. B. MUIRHEAD.

THE NOMENCLATURE OF SPINAL DEFORMITIES.

To the Editor of THE LANCET.

SIR,—In your issue of Sept. 2nd appears an article on Spinal Curvatures and their Treatment, &c. Will you allow me space to call attention to the confusing terminology adopted by the author of that article, and to urge upon him and others interested in these deformities the use of a more accurate nomenclature? He writes of several conditions which I will enumerate in turn. 1. In the title of his paper he uses the phrase "spinal curvatures" to include all deformities of the spine—e.g., Pott's angular kyphosis, scoliosis, kyphosis, lordosis, spondylitis, &c. 2. On p. 667, line 23, he uses "spinal curvature" to mean scoliosis. 3. On p. 668, line 9, he writes of "lateral deviation," and in the next line of a "more or less fixed scoliosis" (4) 5. On p. 668, line 47, he writes of "scoliosis." 6. On p. 669, line 23, of "simple lateral deviation." 7. On p. 669, line 24, of "'a curve in the second degree of severity'—that is, a 'true scoliosis,' but not yet fixed" (8). 9. On p. 669, line 40, he uses "fixed curvature" to mean the angular kyphosis of Pott's disease. And finally, (10) on p. 671, line 10, he writes of "lateral curvatures."

Now, Sir, these terms are so used throughout his article that it is very difficult to follow the author's line of thought. Yet by using the simple method I now suggest all confusion would disappear. 1. Omit the phrase "spinal curvatures" of his title altogether and substitute for it "spinal deformities." 2. Write of the deformity produced by Pott's disease as "spinal caries deformity" or "Pott's angular kyphosis." 3. Write of the lateral curvature of the spine in which there is as yet no bony deformity as "postural scoliosis," or "postural lateral curvature." 4. Write of the lateral curvature of the spine in which bony deformity is present as "osseous scoliosis," or "osseous lateral curvature."

Let future authors drop all such terms as "lateral deviation," "more or less fixed scoliosis," "true scoliosis," "fixed curvature," and "a curve in the second degree of severity"; then we shall know exactly what the authors mean.

I am, Sir, yours faithfully,

Harley-street, W., Sept. 25th, 1911. PAUL B. ROTH.

CHRONIC OBSTRUCTION OF THE BOWEL IN A HYDROCEPHALIC IMBECILE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Sept. 16th, p. 820, a very interesting case is described under the above heading by Dr. A. L. E. F. Coleman and Dr. H. D. Everington. I should like to point out that this case is a typical example of so-called "congenital dilatation of the colon," better called "congenital hypertrophy and dilatation of the colon" (known in Germany as Hirschsprung's disease). The dilatation and thickening of the bowel were not due, as the authors supposed, to chronic constipation, but were the cause of it. I collected a number of these cases for the Jacksonian Essay of 1908, and they will be found in my book on "Diseases of the Colon."

I am, Sir, yours faithfully,

P. LOCKHART MUMMERY.

Cavendish-place, W., Sept. 20th, 1911.

BRITISH HEALTH RESORTS FOR FOREIGN INVALIDS.

To the Editor of THE LANCET.

SIR,—For the furtherance of a movement which may prove advantageous to two great and friendly countries may I ask you to be so very kind as to inform your readers that, taking cognisance of Dr. Neville Wood's paper "British Health Resorts for Foreign Invalids," read before the Royal Society of Medicine and published in THE LANCET of Jan. 7th, p. 12, the French Government has commissioned me to visit the principal health resorts of Great Britain and to issue a report on their suitability for various categories of French invalids, and at the same time to inquire into the practice and teaching of hydrology in the medical schools attached to universities.

I hope at an early date to arrive in London, where my postal address will be the Royal Society of Medicine, 15, Cavendish-square. Thanking you in anticipation,

I am, Sir, yours faithfully,

GUSTAVE MONOD, M.D. Paris, L.R.C.P. Lond., M.R.C.S. Eng.,

Sept. 23rd, 1911. Médecin Consultant à Vichy.

ANÆSTHETICS IN INTESTINAL OBSTRUCTION.

To the Editor of THE LANCET.

SIR,—Following the publication of my clinical notes (of a death under an anæsthetic) in your issue of May 20th last there were several interesting and valuable comments and suggestions in your correspondence columns. All the methods advised for the prevention of such "drowning fatalities" are quite adequate, but some of them have the defect of being complicated to a degree which must lessen the patient's chance of recovery. I refer more particularly to the operation of preliminary tracheotomy with packing the larynx.

In a recent case of complete obstruction, a very old woman, who had fæcal vomiting, a preliminary injection of morphine ¼ gr. and atropine $\frac{1}{150}$ gr. was given. This produced deep somnolence. After administering a very few drops of chloroform on a flannel mask the operation was begun, and at the same time the mouth was opened and sponged out; some dark matter being present, the œsophageal tube was passed and the stomach

washed out. The tube was retained until the end of the operation, when the stomach was again washed out, and the patient, who showed no evidence of shock, was returned to bed. This simple method of preliminary injection, by causing temporary paralysis of peristalsis, made any massive regurgitation impossible, while so little chloroform was required that the presence of the œsophageal tube was no obstacle to the anæsthetist. The essential detail in this method is to grade the dose of morphine according to the patient's age and general condition. One-sixth of a grain will generally be insufficient, except where the patient is emaciated and exhausted; one-third will be too much, unless the patient is big, robust, and alcoholic. If the first dose of morphine prove insufficient to produce somnolence and intestinal paralysis, any second injection must contain atropine, hyoscine, or scopolamine only.

I am, Sir, yours faithfully,

DONALD J. MUNRO.

Great Portland-street, W., Sept. 25th, 1911.

TOXIC EFFECT OF ASPIRIN.

To the Editor of THE LANCET.

SIR,—In answer to Mr. H. Ewan Waller's letter in your issue of Sept. 23rd, I cannot say that either person whose symptoms of aspirin poisoning I mentioned showed signs of minor thyroid inadequacy, but it is perhaps noteworthy that the male patient usually has a brachial blood pressure of only 65 mm. Hg. I am, Sir, yours faithfully,

ALEXANDER BROWN, M.B. Lond.

Bartholomew-road, N.W., Sept. 23rd, 1911.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Recommendations by the Bristol Health Committee.

A REPORT from the Bristol health committee to the city council contains certain very important recommendations. A decision in favour of compulsory general notification of phthisis is urged, as well as the adoption of the Notification of Births Act, 1907, and the transference of the administration of the Midwives Act, 1902, from the watch committee to the health committee. The committee further recommends the appointment of a qualified lady practitioner at a salary not exceeding £100 per annum, to act under the medical officer of health as supervisor of the midwives, the lady health visitors, and such helpers as may be provided by voluntary organisation with the approval of the committee; and it also asks to be authorised to appoint two lady health visitors at salaries not exceeding £80 per annum each, to visit the homes of the poorer classes and give advice as to the care and management of infants and of the homes generally, and to report to the lady practitioner such cases as may require medical advice and assistance. These recommendations prove that the committee and the medical officer of health are impressed with the value of the work done by the school for mothers (to which allusion has been made more than once in these columns), work which they are seeking to promote on a municipal basis by means of the steps recommended.

Bristol Eye Hospital.

Mr. Edmund King, chairman of committee to the Bristol Eye Hospital, has issued an appeal to the public in which he states that, Sept. 30th being the end of the hospital's financial year, the committee finds with regret that it is likely to end the year with a deficit of £700 on the current account, unless this sum is speedily made up by donations. This is partly due to the fact that there have been no large donations towards expenses during the past year.

Hydrophobia from a Fox-bite.

Mr. Richard Bower, master of the South and West Wilts Hunt, died at Sutton Veny, near Warminster, on Sept. 22nd, from a disease stated to be hydrophobia. He was ill only five days. His fatal illness is attributed to the fact that some months ago he was bitten by a fox.

The Gloucestershire Memorial to the late King.

The total amount subscribed to the Gloucestershire Memorial Fund to the late King is £2932. After deducting necessary expenses, the balance will be invested and the income applied towards the promotion of nursing in the county, including the city of Gloucester.

Proposed Memorial Hospital to the late Sir Charles Dilke.

At a large meeting held in Cinderford, Gloucestershire, it was decided to erect a general hospital in the Forest of Dean as a memorial for the political and other services rendered by the late Sir Charles Dilke during his 20 years' political connexion with the district. A committee composed of members of both political parties has been appointed to further the object, and Mr. H. Webb, M.P., stated that there were people in all parts of the world who would welcome the opportunity to aid such a scheme.

The Devon County Asylum.

At a meeting of the Devon county council, held on Sept. 21st, it was stated that Miss Enid Walters, M.B., B.Sc. Lond., had been appointed fourth assistant medical officer and pathologist to the Devon County Asylum at a salary of £130 per annum, rising to £140. Lord Clifford said that the asylum committee had never had a lady medical officer appointed before, and the committee was divided about the appointment. Another speaker remarked "that they could not get a male medical officer because of the remuneration offered."

The Devon County Council and the Treatment of Tuberculosis.

At the last meeting of the Devon County Council it was decided to draw the attention of all sanitary authorities in the county to the extensive powers conferred upon them by the Public Health Acts, including the provision of dispensaries for the benefit of persons suffering from tuberculosis. It was also decided to expend £25 on the distribution of suitable pamphlets on the subject at the discretion of the county medical officer of health.

The Exeter Sanatorium.

The Exeter sanitary committee has recommended that permission should be obtained from the Local Government Board to borrow £15,500 for the purpose of enlarging the city sanatorium. It is proposed to enlarge the existing administrative block of buildings and to erect an observation and discharge block; scarlet fever block, with wards to accommodate 22 patients; nurses' rooms and bathrooms; block with wards for diphtheritic cases, to contain 14 beds; a block for enteric fever cases, with eight beds; a laundry, mortuary, stables, ambulance shed, and other necessary offices.

Infantile Cholera at Plymouth.

At the last meeting of the Plymouth borough council Mr. W. Paul Swain stated that 29 infants, aged from 2 to 3 months, who were suffering from "choleraic diarrhœa," had been treated at the corporation hospital from Sept. 2nd to 11th with sea-water injections. Of this number two had died, one from pneumonia (contracted before admission) and the other from diarrhœa. Mr. Swain considered the results eminently satisfactory, as all the children admitted were in a very serious condition. He added that the removal of the infants from unwholesome surroundings and the hospital treatment might have been important factors in their recovery.

A Health Visitor for Devonport.

Acting upon the recommendation of its medical officer of health (Mr. O. Hall), the Devonport borough council has appointed a health visitor and school nurse, with the object of reducing the infantile mortality in the town.

A Board of Guardians' Subscription to an Infirmary.

The Local Government Board has sanctioned the proposal of the Barnstaple (Devon) board of guardians to subscribe £78 to the funds of the North Devon Infirmary.

Proposed Public Abattoirs for Weston-super-Mare.

A Local Government Board inquiry was recently held at Weston-super-Mare (Somerset) into the application of the urban council for permission to borrow £3405 for the purchase of land for the purposes of public abattoirs.

A Workhouse Medical Officer and Anæsthetics.

At the last meeting of the Bridgwater (Somerset) board of guardians it was decided to allow Mr. Penrose Williams, the medical officer to the Workhouse Infirmary, the sum of

10 guineas for one year for the purpose of covering the expense of an anæsthetist in necessary cases.

Tuberculosis Shelters for Tiverton Isolation Hospital.

The Tiverton town council and the Tiverton rural council, the authorities controlling the Tiverton Isolation Hospital, have decided to place shelters for the treatment of consumptive patients in the grounds of the institution. The Tiverton Association for the Prevention and Cure of Consumption will provide the shelters. The patients will be charged for their treatment if they are in a position to pay, otherwise the expenses will be defrayed out of the rates. The Local Government Board has approved of the scheme provided proper precautions are taken.

Death of Surgeon-General C. K. Colston, I.M.S.

Surgeon-General C. K. Colston, of the Indian Medical Service (retired), died at his residence in Teignmouth (Devon) on Sept. 21st, aged 78 years. After his retirement he took up his residence at Teignmouth, where he soon became very popular. He took a great interest in all local matters connected with the town, and more especially in matters connected with education. He was for some years a member of the old Teignmouth School Board.

Death of Surgeon-Major John Raby, I.M.S.

Surgeon-Major John Raby, I.M.S. (retired), who accidentally poisoned himself with an overdose of a narcotic at Paignton recently, qualified as L.R.C.P. & S. Edin. and M.R.C.S. Eng. in 1865, and had been retired from the Indian army for many years. He saw active work in the Abyssinian expedition, and for his services received official recognition from the Government of India. Before going to Paignton he had resided for a long time at Taunton, where he was very popular. He was a great sportsman and very well known in the hunting field and took many prizes at horse shows. He was a successful competitor at various steeplechases in the West of England. Surgeon-Major Raby was highly esteemed at Paignton and much sympathy is felt there for his widow and family.

Sept. 26th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Death of Dr. James Andrew.

THE death of Dr. James Andrew, which took place on Sept. 19th at Edinburgh, has removed from the medical profession in Edinburgh one of its senior members and from the public a much-esteemed physician. Dr. Andrew, who was the son of the late Dr. James Andrew, a well-known physician of his day, received his medical education at the University of Edinburgh and afterwards studied in Vienna and Berlin. He graduated in the University of Edinburgh in 1866, when he took the M.B. and C.M. degrees, receiving the M.D. degree two years later. In 1869 he became a Member, and in the following year a Fellow, of the Royal College of Physicians of Edinburgh. He was President of the College from 1898 to 1900. For five years he was one of the managers of the Edinburgh Royal Infirmary, and was a member of the Scottish branch of the Queen Victoria Jubilee Institute for Nurses. Among the many medical appointments which he held were those of physician and physician-accoucheur to the Royal Dispensary, Edinburgh, examiner in medical jurisprudence to the Royal College of Physicians of Edinburgh, physician to the Royal Asylum for the Blind, physician to the Royal Hospital for Sick Children, Edinburgh, and lecturer on diseases of children at the University of Edinburgh. He was a Fellow of the Obstetrical Society of Edinburgh, a member of the Harveian Society and also of the Royal Medical Society of Edinburgh. For some years Dr. Andrew had been in failing health, and two years ago he retired from active practice. He had always taken the keenest interest in everything pertaining to his profession, and his death will be felt as a personal loss by a very large circle of friends, both medical and lay.

Sanitary Association of Scotland.

The annual congress of the Sanitary Association of Scotland was held at Oban last week, where a very pleasant and also profitable few days were spent. Dr. John Glaister, professor of public health at the University of Glasgow, read a paper on the Latest Aspects of the Problem of Tuberculosis. He said that it had now come to be recognised that the potent factors in the development of tubercular disease were not so much the condition of the soil or altitude of a place as the intimate home life of a people and the conditions of their employment, environment, and consanguinity. The country generally was beginning to recognise the importance of the adoption of reasonably uniform administrative measures for the repression of the disease. The sanatorium was of great service, but it was not suited for all kinds or degrees of cases, and he thought that too high hopes had been built on the sanatorium as a curative institution for phthisis. There was certainly a crying need for the isolation of phthisical patients in the expectorative stage, and also in the hopeless stage, but although sputum was one source of infection, he thought too little emphasis was laid upon the transmissibility of the disease by milk and fresh meat. In his opinion there should be systematic periodic inspection of milk cows by the tuberculin test, compulsory notification to a central authority of all affected animals, destruction of all animals so diseased as to be able to transmit the disease to other animals, and complete isolation of animals slightly affected, and the slaughter of these as the disease tended to develop. Local authorities, rural and urban, should jointly or severally appoint full-time veterinary officers to carry out these duties. Also the Government should by statute empower the Local Government Boards of the United Kingdom to issue regulations and to see that they were carried out, for a uniform system of meat inspection, so that the present conflicting practices should cease. He added that it was futile to expect much further reduction in the total number of cases of phthisis unless notification and provision of hospital and sanatorium treatment became general. Another paper was read on "The Milne Treatment of Scarlet Fever," and after discussion the following conclusions were arrived at: That the value of hospital isolation in the case of scarlet fever had been greatly over-estimated; that more discrimination should be exercised in the selection of cases for removal to hospital; that the Milne treatment of cases in hospital was not justified by the results (but it must be remembered that Dr. Milne's treatment was proposed for cases dealt with *in situ*, not for cases treated in a fever hospital); that the Milne treatment, with any modifications which might suggest themselves, should have a fair trial over the country in cases retained at home which would otherwise be removed to hospital, the particulars being precisely noted. But it was pointed out that it was generally only in towns, where a nurse or nurses could carry out or superintend the treatment of the patients, that the home treatment could be efficiently carried out. "The Difficulties of Sanitary Administration in the Highland Counties" formed the subject of another paper, which was highly interesting in relation to the recent melancholy exposure of sanitary conditions prevailing in Lewis. The difficulties were partly due to geographical conditions, and partly also to the impossibility of removing wholesale the houses which existed in so many Highland villages, which had been handed down from past generations who possessed very crude notions as to sanitation and general hygiene. The great need there was money, and the Government would have to realise that there were cases where the district or parish had not the funds to fulfil the requirements of the Public Health Acts. In these cases it was not only logical, but necessary, that the responsibility should fall back on higher powers—on the counties, and failing them on Parliament. If they got the powers of the Board of Agriculture enlarged and defined so that they could deal with these matters steps might be taken to remove the difficulties which at present existed, and to improve to some definite extent the sanitary condition of the Highlands. It was suggested that a small deputation should wait on the Secretary for Scotland, and after some discussion the suggestion was remitted to the executive committee.

Glasgow Tuberculosis Exhibition.

The Scottish Exhibition at Glasgow, like various other large modern exhibitions, has a section devoted to tuberculosis. This exhibit was opened on Friday, Sept. 22nd, by the Duchess of Hamilton, under the presidency of the Lord Provost of Glasgow, Sir A. McInnes Shaw. An address was given by Sir James Crichton-Browne.

Sept. 25th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Report of the Local Government Board for Ireland.

The annual report of the Local Government Board contains much interesting information concerning the work of the Poor-law Service in Ireland. The removal of the pauper disqualification in connexion with old age pensions had a marked effect on the statistics of poor relief. In one week at the beginning of the year the workhouse population diminished by 3512, and the number in receipt of outdoor relief by 15,391. It would seem, however, that many of those who left workhouses early in the year shortly returned, for at the end of March the number of aged infirm in workhouses was only 2187 less than in the previous year. The average pauperism for the year was 20·9 per 1000 as compared with 22·4 in the previous year. The number of children boarded out or in certified schools was 2623, being 58 less than in the previous year, while there were 5213 healthy children in workhouses. Both the Vice-Regal Commission and the Royal Commission have declared that maintenance in workhouses should no longer be recognised as a legitimate method of dealing with children. The number of mentally afflicted in workhouses has diminished by 90, but there are still 2230 other than those sick in hospital, confined in workhouses. The deaths in workhouses were 10,406 in number, of which 1548 were due to phthisis. The deaths of 15 centenarians were recorded. 781 infants under one year old died and 408 from 1 to 5 years of age.

The total amount spent on poor relief in the year was £1,361,062. Of this amount a sum of £118,793 was spent in salaries to permanent and temporary dispensary medical officers. The total number of patients attended was 642,759, of whom 479,644 were seen at dispensaries, and 163,115 at their own homes. The number of vaccinations and revaccinations performed was 81,412. The Board notes continued niggardliness in the matter of the granting of pensions to medical officers. In one instance, in the year under review, a medical officer with an excellent record of over 40 years' service and eligible for a pension of £207 8*s.* 2*d.* was awarded £80 a year by the guardians. As is pointed out, "pensions are a reward for past good services, and should be regarded as deferred pay and not as compassionate allowances."

Having recalled the case of a medical officer who was deprived of office on account of having been reported by an election court for bribery at a Parliamentary election, the Board make the following somewhat astonishing comment: "We consider that Poor-law medical officers, owing to the nature of their duties and responsibilities, should act with respect to the election of Members of Parliament with the same degree of reserve that members of the permanent Civil Service observe at such elections, and that they should refrain from interfering in such contests beyond exercising any statutory right to vote they may possess. A similar line of conduct should, we think, be followed by medical and other Poor-law officers in connexion with the local elections for Poor-law guardians and councillors."

Only one case of small-pox occurred during the year. There were several outbreaks of typhus fever in the counties Galway and Clare, and several cases occurred in the towns of Waterford, Dublin, Galway, and Arklow. In the causation of enteric fever milk had a prominent part. In Dublin last winter, 50 cases were definitely connected with the milk-supply of two inter-related dairies. Two outbreaks in the north of Ireland were traced by Dr. B. O'Brien to carriers. In 1908 the Local Government Board promulgated the "Dairies, Cowsheds, and Milkshops Order," designed to safeguard the health of the community from insanitary milk supplies. In only 244 out of 309 sanitary districts have any steps been taken to obey the terms of the Order.

The Board notes with regret the retirement from its inspectorships of Surgeon-Colonel D. Edgar Flinn, who was appointed Chief Inspector of Industrial Schools and Medical Member of the Prisons Board, and of Dr. C. J. Clibborn, under the 65 rule. Their places have been filled by Dr. C. J. MacCormack and Dr. Brian O'Brien.

Belfast and the late Sir Robert Hart.

It is with deep regret that Belfast has learned the death of Sir Robert Hart. In many respects he was by far the most remarkable Ulsterman of the last century; indeed, his romantic career is only equalled by that of Sir Hans Sloane, the founder of the British Museum, who came from the same province, and who was a member of the medical profession. Born in 1835 at Portadown, Sir Robert Hart was a brilliant student of Queen's College, Belfast, and in 1854 he joined the British Consular service in China, and in 1863 was appointed inspector-general of foreign customs and took up his duties at Peking. From this time forward his career is history and need not be recapitulated here. It is enough to say that no foreigner ever wielded such influence as he did in China, and no person ever occupied a more important position in the East than did this brilliant Irishman. Sir Robert Hart married in 1866 a daughter of Dr. Alexr. Bredon, a well-known medical man who practised in Portadown. In 1908 he revisited Belfast and received the freedom of the city. He was a pro-Chancellor of the Queen's University of Belfast, and now, owing to his death, as well as to the decease of Judge Shaw, who was appointed pro-Chancellor in the place of Sir Donald Currie, out of the four who occupied that position only one is left, Lord Pirrie, K.P. It is a remarkable fact that Ulster has contributed three ambassadors to China (in addition to Sir Robert Hart, who was not during the greater part of his career in the English service): Lord Macartney, the first ambassador; Sir Henry Pallinger, Bart.; and Sir John Jordan, who is now the *doyen* of all the diplomatic representatives in Peking, and who was only two years old when Sir Robert Hart, in 1854, entered the consular service in China. Like Sir Robert Hart, Sir John Jordan is an honorary freeman of the city of Belfast.

Sept. 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Drinking Water of Paris.

IN a previous letter[1] I referred to the difficulties encountered each year by the city of Paris in furnishing its inhabitants during the hot spells with an adequate supply of pure drinking water. I called attention especially to the suffering that has been occasioned by the lack of water this year. If, however, as the season passes, the immediate preoccupation with the matter is relaxed, the proper authorities have not lost sight of it, but are giving it their continued attention. The best means of disposing of this problem with the most satisfactory results consists of leading new water sources into the capital. Recently water has been taken from Lake Geneva for analysis with this end in view. On the other hand, at a meeting of the Council of Hygiene Dr. Chantemesse, member of the Academy of Medicine and a professor of the Faculty of Medicine, read a letter from the Prefect of the Seine, who stated that a preliminary project was under consideration for a supply from the sources of the Voulzie, the Dutreint, and the Dragon. This plan would increase the supply of potable water by from 65,000 to 70,000 cubic metres daily. After the reading of this letter Professor Chantemesse, in a report thereon, formulated conclusions favourable to the adoption of this plan, and after some discussion the report was adopted.

Deaths of Dr. Courtault and Dr. Brouardel.

Some years ago an interesting medical enterprise was established under the title of the *Maison du Médecin*, concerning which I have already written. The president was Dr. Courtault. This new enterprise, which already is working well, has recently sustained a great loss in the person of its president. Dr. Courtault was very fond of the sea, and was taking a voyage as ship's surgeon on board the *Emir*. After a trip to Algeria the vessel was spending an evening at Gibraltar, when, during the night, the *Emir* was run into by the *Silverton* and sank in 700 metres of water in a minute. Dr. Courtault perished immediately. The medical profession has been saddened also by another death, in this case

[1] THE LANCET, August 12th, 1911, p. 472.

that of a martyr to professional duty. Dr. Louis Brunndet, professor of anatomy at the Medical School of Rheims, contracted from one of his patients a malignant anthrax of so severe a nature that he succumbed.

The Crusade against Tuberculosis in the Marine.

The fight against tuberculosis, a disease that reaps annually a large number of victims among seamen, needs pursuing in the interests not only of the patients themselves, but still more in those of the ship's crew as a whole. The Minister of Marine, M. Delcassé, has appointed a commission to inquire into all the means of arresting the progress of tuberculosis among both the ships' crews and the workmen in the naval depôts. Modern ships with their excess of warmth in the cabins are foci of pulmonary congestion and consequently of tuberculosis. It is the same in the arsenals, the construction of which is for the most part antiquated and devoid of any reference to hygienic principles. The sea services are to be rigorously barred to the tuberculous; persons attacked with the disease will either be sent to their homes or isolated. The existing sanatorium at Trébéron, near Brest, is reserved for patients coming from northern ports, and the construction of a similar institution in the south is under consideration to receive those patients coming from Toulon or Rochefort. As to the incurables, the Marine Service will ask from Parliament power to grant them in a comprehensive measure either proportionate pensions or assistance.

Sept. 28th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Syphilitic Affections of the Heart.

AT the last meeting of the Berlin Medical Society before the summer vacation Dr. Breitmann of St. Petersburg read a paper on Syphilitic Diseases of the Heart and their Treatment. He said that syphilis of the heart had no specific symptoms, but that the combination of certain symptoms and the mode of their development were characteristic. According to him the following manifestations made a syphilitic affection very likely: (1) rapid development of cardiac disease without pyrexia or other acute symptoms; (2) enlargement of the cardiac dulness and hypertrophy without an obvious cause; (3) the existence of a severe affection of the heart simultaneously with the absence of valvular symptoms, œdema, or pain; (4) early development of arterio-sclerosis; (5) the presence of other syphilitic symptoms, such as exanthemata or gumma, together with the cardiac affection; (6) a positive Wassermann reaction; and (7) the good result of specific treatment. The diagnosis of syphilis of the heart is of great importance, because treatment commenced in good time gave excellent results, whilst a delay might lead to early death. Sudden death was observed by Dr. Breitmann in from 33 to 50 per cent. of the cases, especially after bodily exertion or over-indulgence in alcohol. Endarteritis was frequently present in those cases. Every case of angina pectoris during the younger period of life was open to the suspicion of syphilitic origin. With respect to treatment, Dr. Breitmann said that the first thing to be done was to strengthen the heart; narcotics, anæsthetics, hydrotherapy, massage, and every form of treatment requiring exertion should therefore be avoided. In sclerosis of the coronary arteries the administration of digitalis might be directly fatal. The development of troubles of the circulation in syphilitic diseases of the heart must be combated by mercurial treatment, which usually made the threatening symptoms disappear; afterwards the administration of iodine was necessary. Salvarsan having a tendency to weaken the action of the heart was absolutely contra-indicated in syphilitic diseases of that organ. In sclerosis of the coronary arteries and in myocarditis cardiac failure might follow the administration of salvarsan.

The Indications of the Wassermann Reaction in the Treatment of Syphilis.

At the same meeting of the society Professor Plehn, physician to the Urban Hospital in Berlin, read a paper on the practical application of the Wassermann reaction in the treatment of syphilis, especially in the tertiary form. He said that in order to test the efficacy of the Wassermann reaction it had been performed in 200 cases under his care, the patients including not only persons suspected to be syphilitic, but also others suffering from a variety of diseases, such as rheumatic affections, arterio-sclerosis, nervous diseases, &c. In 139 of these cases there was no previous history of syphilis, and the reaction in these cases was negative. In seven cases, however, the reaction on being made several times was alternatively positive and negative without any antisyphilitic treatment. In two of the cases there was a history of chancre, but there were no discoverable syphilitic symptoms, the patients having been brought to the hospital for an apoplectic seizure and for neuralgia of the trigeminus nerve respectively. In one case the post-mortem examination did not show any sign of syphilis, although there had been a well-marked positive Wassermann reaction; on the other hand, in four cases syphilis was recognised at the post-mortem examination, although the reaction had been negative. Of nine patients, aged between 55 and 75 years, without any suspicion of syphilis in their history and without symptoms of that disease, the reaction was negative in five and positive in four cases. With respect to diseases of the central nervous system Professor Plehn said that of three tabetic patients having no history of syphilis two gave a negative and one a positive reaction. Of four tabetic patients with a syphilitic history three gave a positive and one a negative reaction; the blood of four patients with general paralysis gave a negative reaction, but the cerebro-spinal fluid of one of them gave a positive reaction. Of two patients with tabo-paralysis one admitted but the other denied having suffered from syphilis. In all these cases the reaction was repeated six times, always with the same result. Patients suffering from arterio-sclerosis gave in the majority of cases a negative reaction. Professor Plehn expressed the opinion that in cases where the Wassermann reaction had been positive, although neither manifest syphilitic symptoms were present nor was there any history of syphilis, the explanation was that syphilitic infection had taken place at some former time, but with symptoms so insignificant that the patient had not noticed it, and that the disease had subsided without any treatment. Spontaneous recovery from syphilis was more frequent, he said, than was believed. The opinion that syphilis remained in the active state as long as the Wassermann reaction was positive, and that the treatment must be continued till the reaction became negative, was an error; a negative reaction obtained after antisyphilitic treatment might again become positive and a negative reaction did not always mean a definitive recovery. On the other hand, the reaction might be always positive without any concurrent clinical phenomena, so that a positive reaction did not prove the syphilitic nature of suspected symptoms. Professor Plehn concluded that the utmost precaution was necessary in using the Wassermann reaction for differential diagnosis, because the results obtained were often misleading, and it must never by itself be accepted as an indication either for or against specific treatment, except in the early stages of the disease.

Sept. 25th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

The Public Health Exhibit at the Toronto Exhibition.

UNDER the direction and management of Dr. W. S. McCullough, chief health officer of Ontario, an excellent public health exhibit was held at the recent Toronto annual exhibition. This was a development of the travelling tuberculosis exhibit which was established by the Ontario Board of Health some few years ago. The exhibit this year embraced a large variety of subjects, and although the space allotted was limited the display was remarkably good. The Provincial Board of Health of Ontario showed a collection of well-mounted photographs of sanatoriums in Great Britain, Germany, Scandinavia, the United States, and Canada, together with models of tents, sanatoriums, and huts for the care of consumptives. The Toronto Health Department displayed charts, banners, and literature. Perhaps the outstanding feature of the exhibit was the contribution of the United States, and

especially the charts and mechanical models lent by the Department of Health of Chicago. Dr. C. St. Clair Drake of Chicago, the designer of the models, was in charge. The first model was illustrative of infant mortality in Chicago, and took the form of a revolving cylinder worked by clockwork. A succession of dolls appeared, and every fourth doll was destroyed by a figure representing the Angel of Death. Another model illustrated ventilation and its lack. Two rooms of the same size were shown in which were dolls in beds. By means of an ingenious contrivance vapour was seen to issue from the noses of the dolls at the ordinary breathing rate. One of the rooms had its doors and windows open and the atmosphere remained clear, while in the other room, where windows and doors were closed, the air was soon seen to be quite thick. These models excited great interest and thus the desired object was attained. It was instructive to listen to the questions and comments of the crowd of women who continually surrounded these practical demonstrations during the exhibition. In a commodious theatre, situated in the women's building, a series of health talks was given daily by men and women versed in preventive medicine. The lectures were illustrated by pictures on a screen, showing good and faulty milk conditions, the danger of flies, &c. Among the lecturers were Dr. Charles Hastings, Dr. Helen MacMurchy, and Dr. Connell of Kingston. Great interest was manifested in these lectures, and such instruction of the general public in the causes and modes of prevention of disease should bear good fruit.

Hospitals of Toronto.

The buildings of the new General Hospital of Toronto are being proceeded with rapidly. The administrative block and the surgical and medical wings which face College-street are externally nearing completion, and the façade is imposing and workmanlike if not altogether a thing of beauty. It is stated that the pathological wing will be completed and ready for occupation on Oct. 1st. The new Western Hospital on Bathurst-street is rapidly approaching completion; so also is the addition to St. Michael's Hospital, which will more than double its in-patient accommodation. The city of Toronto is about to construct a large modern isolation hospital. Lastly, a private hospital with ample accommodation will soon be opened.

Resignation of Dr. Charles Sheard.

Dr. Charles Sheard, who recently resigned the medical officership of health of Toronto, has now also resigned the professorship of preventive medicine in the Medical Faculty of Toronto University. Dr. Sheard had been a lecturer at the University since 1882, and as an exponent of public health matters his experience and ability enabled him to put his knowledge into clear and forcible language.

Sept. 19th.

NOTES FROM SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

The New Union Health Organisation.

THE names of the health officers for the Union have now been announced. Dr. F. A. Arnold is appointed medical officer of health for the Union, stationed at Pretoria; and Dr. J. A. Mitchell, Dr. L. G. Haydon, and Dr. P. T. Adams the assistant medical officers, stationed respectively at Cape Town, Durban, and Bloemfontein. Dr. Arnold entered the service of the late Transvaal Government in 1905, when he was appointed a district medical officer and shortly afterwards assistant medical officer of health for that colony. He became medical officer of health in January, 1910, in succession to the late Dr. Walker. Dr. Mitchell has been the assistant medical officer of health for Cape Colony since 1901, Dr. Haydon the assistant port health officer, Durban, since 1904, and Dr. Adams the assistant medical officer of health, bacteriologist, and analyst for the Orange River Colony since 1903. The profession in South Africa will extend its cordial congratulations to these officers on their new appointments, though it can hardly fail to continue its opposition to the Ministerial policy which these appointments imply. Ever since the retirement on pension of Dr. George Turner, the medical officer of health for the Transvaal has been purely an advisory officer, and the actual administration of public health in that colony has been relegated to a comparatively junior clerk in the department of the Colonial Secretary and, since Union, of the Interior. It is public knowledge that the appointment has been a sinecure without any real work or responsibility. It is feared that this will be the case also with the new appointment of medical officer of health for the Union. In any event, in his new capacity Dr. Arnold will hardly ever be able to leave his headquarters and to get into touch with the needs of the country or even of the province in which he is stationed, and the same remark applies also to the assistants. Thus Dr. Mitchell has been appointed also the administrator of the Food and Drugs Act in the Cape Province, work which, though probably trifling in amount, would seem effectually to prevent him from travelling. Dr. Haydon is apparently to continue his port health duties, and Dr. Adams is to continue in charge of the bacteriological and analytical laboratory at Bloemfontein. These officers therefore will obviously not be available for many public health duties outside the respective towns in which they are stationed. It is understood that the assistant medical officers are not to be under the control of Dr. Arnold, but will each be directly responsible to the lay officials in the Department of the Interior. Moreover, the work is to be concentrated at Pretoria, to which all communications on public health matters, including the returns of notifications of infectious diseases by local authorities, have now to be addressed, in direct violation of existing laws. In other words, the Government has adopted a system of administration which, besides being illegal in certain provinces, has been condemned by leading men, commissions, public bodies, and the medical profession in South Africa after prolonged trial, and seems in bringing such system into operation to have deliberately tied down the technical officials to the towns in which they are stationed, so as to prevent them from undertaking useful and urgently needed work at other centres.

The Census Returns.

The unaudited figures for the Census of the Union were published a few days ago in the form of a Government Blue-book. An examination of these figures shows that the population has increased by 15·12 per cent. since the Census in 1904. Europeans have increased by 14·44 per cent., natives by 16·19 per cent., and all other coloured races by 9·84 per cent. The total other than European population has increased by 15·31 per cent. during the septennium. Whilst the latter rate may be said to represent almost entirely the natural rate of increase amongst the coloured races, this cannot be stated of the European rate, for in this case the figures are vitiated by the effects of immigration and emigration. Unfortunately, no steps can be taken for ascertaining the exact rate of the natural increase in Europeans, for the immigration and emigration statistics are quite unreliable. It is believed, however, that the emigration has far exceeded the immigration during the period. In 1904 in the territories of the Union the white population numbered 21·58 per cent. of the whole. This position has been practically maintained, for on May 7th the European population numbered 21·45 per cent. of the whole. In other words, the white man has barely maintained his position in South Africa. From this point of view it was inevitable that the Cape returns should prove the least satisfactory of the four provinces, for the prolonged depression was undoubtedly felt most acutely at the Cape, and during the period of retrenchment a very large number of people emigrated. Moreover, the revival of industrial activity on the Rand took place before the effects of the depression had passed away, and naturally there was an exodus from centres where employment was hard to obtain to the centre where there was a demand for labour. In the Cape Province the white population shows a growth of only 3436, or 0·59 per cent., while the total coloured population has increased by 149,784 persons, or 8·18 per cent. Natal for similar reasons has remained almost equally stagnant in respect of its white population, which has increased merely by 1473 persons, or 1·52 per cent., while the total coloured population in this province has increased by 81,731, or 8·08 per cent. The Transvaal population now numbers a European population of 420,831, an increase of 41·56 per cent., and the Free State has increased its white inhabitants by 22·96 per cent. to 175,436. The other than European population in these two provinces have increased 29·11 and 43·67 per cent. respectively.

The figures for the two sexes show that the females

within the Union have increased somewhat more than the males, the latter having increased since 1904 by 14·44 per cent. as compared with 15·85 per cent. in respect of the former. Thus the number of females in the Union to every 100 males is now 94·11 as compared with 92·97 in 1904. European males have, however, only increased 8·08 per cent. as compared with 22·81 per cent. the rate of increase for European females. In the case of the other than European population, however, the rate of increase has been 16·42 per cent. for males and 14·19 per cent. for females. The number of females to every 100 males in the Union is for Europeans 86·18 per cent. as compared with 75·84 in 1904, and for other than Europeans 96·40 per cent. as compared with 98·28 per cent. in 1904. But when one comes to examine the figures for the four provinces it is seen at once how the depression in trade has operated on the Coastal Provinces. Thus in the Cape of Good Hope the European male population has actually diminished by 16,825, a decrease of 5·28 per cent., and in Natal by 3927, or 6·92 per cent. In these provinces European females increased by 7·76 and 13·38 per cent. respectively. On the other hand, in the Transvaal and Free State the European male populations increased by 33·12 and 15·99 per cent., and the European female populations by 54·2 and 32·25 per cent. respectively. And in the Cape and Natal the other than European male populations only show an increase of 6·04 and 4·23 per cent. as compared with the corresponding rates of increase for females of 10·27 and 11·75 per cent. respectively. In the Transvaal the rate of increase has been for coloured males 39·13 per cent., and coloured females 17·38 per cent. In the Orange Free State the rate of increase for coloured males has been 43·29 per cent., and for coloured females 44·09 per cent. The number of females to every 100 males in the Cape of Good Hope is for Europeans 93·28, as compared with 82·00 in 1904, and for the coloured races 107·37, as compared with 103·25 in 1904. In Natal, for Europeans 86·6, as compared with 71·09 in 1904, and for the coloured races 112·41, as compared with 104·84 in 1904. In the Transvaal the proportion is for Europeans 77·35, as compared with 66·78 in 1904, and for the coloured population 72·14, in contrast to the proportion in 1904, when it was 85·51. In the Free State the proportion is 85·42 for Europeans, as against 74·91 in 1904, and 90·85 for coloured, as compared with 90·34.

The changes which have taken place in the European populations are largely accounted for, as already stated, by the depression in the Coastal Colonies and the fact that the mining areas in the inland colonies are becoming more and more settled communities. The emigration of Europeans from the Cape and Natal was largely amongst unmarried men, whilst besides the large influx of European males to the mining areas there was a proportionately greater immigration of European females. The changes in the sex composition of the coloured populations of the four provinces are, of course, explained by the fact that very much larger numbers of coloured males from the Cape and Natal are now working on the Transvaal mines than was the case in 1904. As far as particular areas are concerned, it is of interest to note that in the Cape Peninsula (excluding Simonstown) the total European population decreased by 20,233, or 17·92 per cent., and that the coloured population increased by 6412, or 7·23 per cent., resulting in a net decrease in the total combined population of 13,821, or 6·86 per cent. On the other hand, the European population of the Witwatersrand increased by 72,624, or 60·25 per cent.; whilst the coloured population of this area increased by 150,218, or 99·58 per cent. The following table shows the population of the different provinces of the Union on May 7th last, viz. —

Province.	European.	Native.	Other coloured.	Total.
Cape of Good Hope	583,177	1,545,308	434,539	2,563,024
Natal	98,582	951,808	141,568	1,191,958
Transvaal	420,831	1,224,155	31,625	1,676,611
Orange Free State	175,435	339,811	11,660	526,906
Total	1,278,025	4,061,082	619,392	5,958,499

Johannesburg Hospital.

The management of the Johannesburg Hospital has recently come in for a good deal of criticism in the lay press, and in particular allegations have been made of undue delays in the attending to casualty patients. These were investigated by a committee appointed by the board of management, which reported that the complaints were without foundation. At the same time, however, it has been recommended, and the board has agreed, that two wards in the main block should be appropriated and converted to the uses of a casualty ward and receiving room with necessary offices. It would thus seem as if there may after all have been some justification for the newspaper crusade against the hospital. It is understood that the authorities at this hospital have agreed to take in insane patients from Oct. 1st, the date when the new Prisons and Reformatory Act comes into operation. In this Act it is, *inter alia*, provided that into no jail of any district in which there is a public hospital or asylum shall any lunatic or alleged lunatic be admitted. Hitherto all such cases, if not kept under observation in their own homes pending removal to the asylums, have been detained in the jail hospitals. In view of the new Act the Government has approached hospital boards with the object of getting such patients received into the hospitals. Nearly all the hospital boards have refused point-blank to have anything to do with such patients on the ground of lack of accommodation. It is not known whether the board of the Johannesburg Hospital intends to provide special accommodation or whether it proposes to treat merely selected cases in the general wards of the institution. The great and pressing need throughout the Union is for more asylum accommodation, as for many years past grave delay has occurred in removing patients to the asylums after certification, and this has been due solely to lack of accommodation. It is satisfactory to note that the question of enlarging the asylums is now receiving attention.

August 29th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Kasauli Pasteur Institute.

THE tenth annual report of the Kasauli Pasteur Institute, relating to the year 1910, states that the number of persons treated was 2073, a higher figure than in any year since the opening of the institute in 1900. The percentage of failure in treatment was 0·19; the lowest percentage of failures previously had been 0·36 in 1908. It is true that 26 deaths occurred from hydrophobia among the cases treated, but 14 of these died during, and 8 within 15 days of completion of, treatment; only the 4 cases that died later than 15 days after completion of treatment are accounted to be failures. The institute completed the first ten years of its existence on August 9th, 1910; Major W. F. Harvey, I.M.S., very opportunely therefore presents us with a review of the changes which have taken place in anti-rabic treatment and in some of our conceptions regarding the disease. The most important of these has been the substitution of the method of Högyes (that is, the injection of high dilutions of "living and virulent" virus at first, followed by gradually diminishing dilutions) for Pasteur's original "dried cord" method (that is, commencing the treatment with a dead virus and following it up with an attenuated living virus). Further, by the employment of Negri's method of microscopic diagnosis in brain tissue the necessity for using animals as tests for the presence of the virus has been almost entirely done away with. In considering the factors that make for fatality the depth of the wound is one of importance; of the 26 fatal cases, 22 were bitten deeply and 4 only were superficial bites. Interposition of clothing is, of course, a great protection; all the fatal cases but one were bitten on the bare skin, and in this one case the clothing was torn. Cauterisation, if done quickly and thoroughly, is able to avert infection; of the 26 fatal cases, 18 had been either not cauterised at all or with an inefficient caustic, or later than one hour after the bite. As to the proper measures for the prevention of rabies in India, where extermination of the contagion is impossible, Major Harvey holds that the true prophylaxis begins with

the rabid animal. For the European officer class he lays down three injunctions: (1) let no one allow his own or his friend's dog to lick him; (2) let no one allow his dog to sleep on his bed; and (3) let everyone treat a sick dog as if he were a rabid dog. For the protection of other classes of the population he advocates the registration of dogs and their muzzling for, say, three months at a time. This would be, indeed, an Augean task. Local treatment with pure carbolic acid thoroughly applied at once, or the application of a Bier's bandage above the part bitten (so as to cause congestion), or of a Bier's vacuum glass, or cauterisation, are recommended. In Great Britain, thanks to the energy and determination of Mr. Walter Long, any dread of hydrophobia has ceased; in India, we fear, it can never be exterminated; but since the establishment of Pasteur institutes the cause for anxiety has been greatly diminished. If Sir David Semple's method of using a vaccine prepared from a killed virus and diluted with carbolised saline solution[1] be adopted, the necessity for travelling long distances to the Pasteur institutes would be done away with and the patient could be treated without delay. In any case the work of the Kasauli Institute will stand out as one of the most beneficent of the results of British rule in the sphere of prevention of disease. It is most gratifying to see announcements of liberal contributions from the Maharajahs of Gwalior, Benares, and Patiala, and from other native rulers, as well as from many municipalities towards the erection of new buildings, including accommodation for all classes of Indian patients, at Kasauli; it is evidence that the work of the institute is thoroughly appreciated.

Septic Tank Latrines.—Accidents in Factories.

The use of these is extending, and they appear to work satisfactorily in the tropical climate of Bengal. A recent report reminds us that they are not without dangers. An explosion occurred in the septic tank at the Kankinara jute mills last winter; it had been closed for purposes of cleaning. About 1 A.M. a party of eight sweepers came to examine the tank and introduced a naked light into the manhole; this was immediately followed by an explosion. Two men were killed outright, the remaining six were badly injured, and the building was completely wrecked. There was a considerable increase in factory accidents during the year, 1235 compared with 957 in the previous year; 77 were fatal.

Bengal Water-supply.

Local self-government is carried out in Bengal through the medium of district boards. These authorities are not always inclined to devote much expenditure to matters affecting health, in which respect they are not very unlike local sanitary authorities in other parts of the world. Attention has been called to the necessity for improving the water-supply in certain areas, but without leading to any action in consequence; whereupon it is noted that unless local bodies will of their own initiative pay greater attention to this important item of administration, the Bengal Government will have no alternative but to earmark for this purpose a portion of the grants made to district boards, as it is impossible to acquiesce in the persistent disregard of the instructions in this matter.

Sept. 6th.

[1] See THE LANCET, July 15th, 1911, p. 173.

LISTER INSTITUTE OF PREVENTIVE MEDICINE.—Mr. Major Greenwood, jun., F S S., statistician to the Institute, will begin a course of lectures and demonstrations on "Statistical Methods and their Applications in Preventive Medicine and Pathology," on Monday, Oct. 16th, at 5 P.M. The lectures will deal with the aims of statistical science and the classes of problems to which its methods can be applied; the study of variation and the commonly observed types of frequency distribution; associated or correlative variations, and methods employed in their quantitative study; errors of sampling, outline of the theory and its practical applications. This course is open, without fee, to all medical men and to others interested in the subject. Further particulars, together with information as to the conditions under which those desirous of undertaking research work in medical statistics are admitted to the institute's laboratory, can be obtained on application to the secretary of the governing body, Lister Institute of Preventive Medicine, Chelsea Bridge-road, London, S.W.

Obituary.

FREDERICK WILLIAM PAVY, LL.D. GLASG., M.D. LOND., F.R C.P. LOND., F.R.S.,

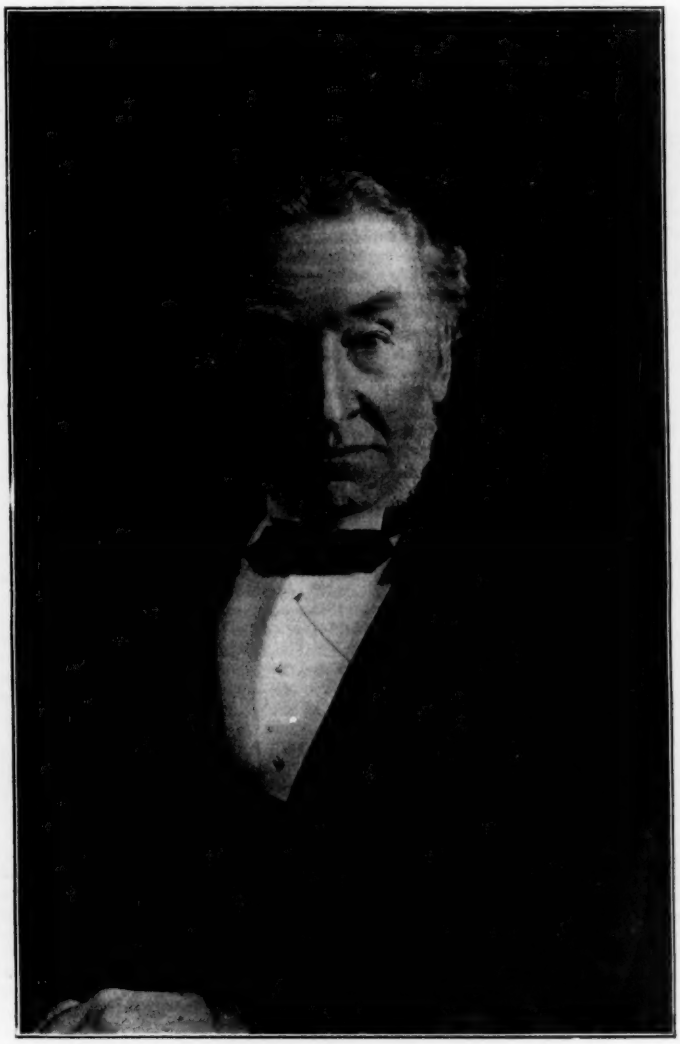
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

Frederick William Pavy, who died at his residence, 35, Grosvenor-street, W., on Sept. 19th, in his eighty-third year, was born at Wroughton, Wiltshire, on May 29th, 1829. He was educated at Merchant Taylors' School. He proceeded thence in 1847 to Guy's Hospital. In 1852 he took the M.B. of London University, gaining honours in physiology and comparative anatomy, surgery, obstetric medicine, and medicine, in which last-named subject he was also medallist. In the following year he proceeded to the M.D. degree. After serving as house surgeon and house physician at Guy's Hospital he went to Paris to continue his studies, where he came into contact with Claude Bernard, then at the height of his fame. In 1854 he was appointed a lecturer on anatomy at Guy's Hospital. In 1856 he became lecturer on comparative anatomy, physiology and microscopical anatomy at the same school, holding the former post until 1864, when he relinquished it to Dr. P. H. Pye-Smith, who also succeeded him in 1877 in the lectureship on physiology. In 1859 he was appointed assistant physician at Guy's, and a lecturer on clinical medicine during the summer session. In this year he published in the *Guy's Hospital Reports* a paper on Lesions of the Nervous System producing Diabetes, thus identifying himself with the special subject in medicine with which his future career was to be so closely associated. In the same year he delivered the Lettsomian lectures on Certain Points Connected with Diabetes. These lectures were published in THE LANCET in November and December, 1860, and show very well how scientific was the spirit in which Pavy was approaching great scientific problems. In the same year he was elected a Fellow of the Royal College of Physicians of London, and in 1861 his first communication was made to the Royal Society, in which he detailed his researches on sugar formation in the liver; this paper was published in the society's Philosophical Transactions for that year. He delivered the Goulstonian lectures on Assimilation and the Influence of its Defects on the Urine in 1862–63.[1] These lectures were published in full in THE LANCET, and, taken in conjunction with contributions to the Guy's Hospital Reports on allied subjects, marked their author out, while still a young man, as a leader of thought in the profession. In 1872–73 he became an examiner at the Royal College of Physicians, which function he again fulfilled in 1878–79. He was a councillor of the College for 1875–77 and again for 1888–90. In 1871 he was appointed full physician to Guy's Hospital, and Lecturer on Medicine at its medical school, holding these offices until 1890 and 1886 respectively. In 1878 he delivered the Croonian lectures before the Royal College of Physicians of London, choosing for his subject Certain Points Connected with Diabetes.[2] These lectures were subsequently published in book form, and the clearness and terseness with which the observer stated his views, and the dignified moderation with which he has answered the objections raised against them, established him firmly in the good opinion of the scientific members of the medical profession.

In 1882–83 Dr. Pavy became Censor of the Royal College of Physicians, an office which he again held in 1891. In 1886 he was Harveian Orator of the Medical Society of London, his oration being published in our columns on Oct. 23rd. In 1888 he received the honorary degree of LL.D. at Glasgow University. In 1890 he passed on to the consulting staff at Guy's Hospital. On Oct. 8th of that year he formally handed over to the gymnasium committee of the Guy's Hospital Students' Club the gymnasium generously built and equipped by him for their benefit. He was President of the Royal Medical and Chirurgical Society in 1893, and in 1894 he was again Croonian lecturer of the Royal College of Physicians of London, while in 1897 he delivered a Supplementary Croonian lecture on Points Connected with the Pathology and Treatment of Diabetes, which was published in THE LANCET of Nov. 20th and 27th. In

[1] THE LANCET, Dec. 6th, 1862, and April 25th, May 2nd, May 23rd, July 25th, and Sept. 12th, 1863.

[2] THE LANCET, March 30th, April 6th, 20th, 27th, May 4th, 18th, July 6th, 20th, August 3rd, 31st, and Sept. 7th and 21st, 1878.



FREDERICK WILLIAM PAVY, LL.D., M.D., F.R.C.P., F.R.S.

(Reproduced from a photograph by Messrs. Maull and Fox.)

1901 he was awarded the Baly gold medal by the Royal College of Physicians for his distinguished work on Physiology. In 1908 he delivered before the Royal College of Physicians some lectures on the Pathology and Treatment of Diabetes Viewed by the Light of Present-day Knowledge. These lectures also were published in our columns, and contain his last pronouncements on the subject that he had made his life-long study. In 1909 Dr. Pavy became a Lauréat de l'Académie de Médecine de Paris, receiving the Prix Godard for his physiological researches.

In 1909 also fell his eightieth birthday, which was commemorated by the medical profession in a marked manner. It was generally recognised that Pavy was among the best known and most learned of our physicians and physiologists, while despite the weight of years he was maintaining himself in the van and fighting for truth as keen and vigorous a battle now as ever he did when he was winning his spurs over 50 years earlier. The Physiological Society at its meeting at Oxford on June 26th chose the occasion to pay him honour, for Professor F. Gotch then presented to him on behalf of the society a silver bowl in token of affection and admiration.

Dr. Pavy's learning was widely recognised throughout the medical world, as is shown by the honorary distinctions conferred on him by his medical *confrères* in foreign lands. He was a corresponding member of the Société d'Anatomie de Paris, of the Medico-Chirurgical Society of Edinburgh, and of the Verein für Innere Medizin of Berlin, and a Corresponding Fellow of the Pathological Society of Montreal; an honorary member of the Philadelphia County Medical Society, a foreign honorary member of the Royal Academy of Medicine of Belgium, and a Member (and former Vice-President) of the Paris Medical Society. His distinguished physiological work gained him the Fellowship of the Royal Society. He was President of the Association for Advancement of Scientific Research and Chairman of the National Committee of International Medical Congresses.

Dr. Pavy's literary work was both voluminous and important. It was mainly devoted to the physiology of digestion and the subject of diabetes. In addition to the lectures and contributions to medical literature already named he was the author of the following books: (1) "Researches on the Nature and Treatment of Diabetes" (1862), which reached its second edition in 1869. (2) "A Treatise on the Function of Digestion; Its Disorders and their Treatment" (1867). This work also reached its second edition in 1869. (3) His "Treatise on Food and Dietetics," published in 1874, and reaching a second edition in the following year, received a hearty welcome from the medical profession. Definite pronouncements from the pen of one who had devoted so much attention to his subject, and who was so high a scientific authority on all questions relating to digestion and assimilation, were sure from the first of the circulation which it deserved. Not pretending to contain much original research, the book presented an admirably clear, full, well-digested account of all-important facts and theories on the supply of force and material to the human organism. (4) "The Physiology of the Carbohydrates, their Application as Food and Relation to Diabetes," was published in 1894. (5) His last work, which was on "Carbohydrate Metabolism and Diabetes," was published in 1906, and like all the author's writings on the subject of carbohydrate metabolism and diabetes proved of interest and importance to students of a fascinating problem, embodying the views of one who had devoted his life's work to this branch of physiology and pathology, and who had pursued the path of investigation with exemplary diligence and pertinacity. Dr. Pavy's antagonism to the theory of glycogenesis as usually held was shown by his rapid departure from this theory to the enunciation of his own position, that so far from the passage of absorbed carbohydrate from the intestine to the liver being a normal process it is only when an undue amount of sugar is present in the alimentary canal that it reaches the portal system at all.

As an extraordinary proof of the concentration of Pavy's interests we reproduce here the titles of a few of the principal communications that have appeared in our own columns from his pen, excluding lectures and others that have been already mentioned. They are: "On a case of Cholera," THE LANCET, August 5th, 1865; "Paroxysmal Hæmaturia," THE LANCET, July 14th, 1866; "Hydatid of Liver, Treated Successfully by the Injection of the Extract of Male Fern into the Cyst," THE LANCET, Sept. 1st, 1866; "On the Alleged Efficacy of the Peroxide of Hydrogen and Ozonic Ether as Remedial Agents in Diabetes Mellitus," THE LANCET, March 13th, 1869; "Contributions on the Physiology and Therapeutics of Food," THE LANCET, Dec. 2nd, 16th, 23rd, 1871, Jan. 13th, 27th, Feb. 10th, and March 23rd, 1872; "The Effect of Prolonged Muscular Exercise upon the Urine in Relation to the Source of Muscular Power," THE LANCET, Nov. 25th, Dec. 9th, 16th, 23rd, 1876, and Jan. 13th, 1877; "A New Method for the Quantitative Determination of Sugar in Blood," read before the Royal Society, June 14th, abstract in THE LANCET, July 7th, 1877; "The Physiology of Sugar in Relation to the Blood," read before the Royal Society, June 21st, 1877, THE LANCET, July 14th, 1877, p. 53; "A New Line of Research Bearing on the Physiology of Sugar in the Animal System," read before the Royal Society, June 8th, 1881, THE LANCET, July 2nd, 1881; "Introductory Note on the Physiology of the Carbohydrates in the Animal System," read before the Royal Society, April 12th, 1883, THE LANCET, April 21st, 1883; "On the Physiology of the Carbohydrates in the Animal System," read before the Royal Society, Dec. 20th, 1883, THE LANCET, Jan. 5th, 12th, 19th, 26th, Feb. 2nd and 9th, 1884; "On the Quantitative Determination of Sugar for Clinical Purposes by the Ammoniated Cupric Test," THE LANCET, March 1st, 1884; "On Cyclic Albuminuria (Albuminuria in the Apparently Healthy)," read in the Section of Medicine, British Medical Association (Cardiff), 1885, THE LANCET, Oct. 17th, 1885; "Introductory Address to the Discussion on the Clinical Aspect of Glycosuria," read in the Section of Medicine, British Medical Association (Cardiff), 1885, THE LANCET, Dec. 5th and 12th, 1885; "Ferrocyanic Test Pellets for Albumin," THE LANCET, June 13th, 1885; "A Further Contribution on Cyclic Albuminuria, with Observations on the Effect of Various Conditions upon the Diurnal Appearance of the Urine," THE LANCET, March 6th, 1886; "Cyclic Albuminuria," THE LANCET, April 14th, 1888; "On the Diagnosis of Cases of Albuminuria, with special reference to Life Insurance," THE LANCET, August 24th, 1889; "On the Principles of Treatment of Diabetes Mellitus," read at the International Medical Congress, Berlin, 1890, abstracted in THE LANCET, August 16th, 1890; "Differentiation in Diabetes," THE LANCET, June 16th, 23rd and 30th, 1900; "On the Acetone Series of Products in connexion with Diabetic Coma," THE LANCET, July 12th, 19th, 26th, August 9th, 1902; "On Diabetic Neuritis," THE LANCET, July 2nd and 9th, 1904; "Lectures on Carbohydrate Metabolism," delivered at the University of London, THE LANCET, June 24th, July 1st, and August 5th, 1905; "The Pathogeny of Diabetes," read at the Fifteenth International Congress of Medicine (Lisbon), April, 1906, THE LANCET, May 5th, 1906; "A Study of the Conditions producing the Anomalous Reaction not infrequently met with on Testing Urine for Sugar with Fehling's Solution," THE LANCET, July 27th and August 3rd and 10th, 1907.

What was exactly the scientific position of this distinguished man? In the first place his labours form a connecting link between the past and the present. He was the last survivor of a line of distinguished physician-chemists who in this country, during the earlier and middle years of the last century, did much to lay the foundations and advance the study of metabolic disorders. He was a worthy successor of Prout, Alexander Marcet, Bence Jones, and Golding-Bird, and a contemporary of William Marcet, Roberts, Garrod, and Thudichum; but he also ranks as a pioneer among the chemical pathologists of the modern school, who, in the light of a far more ample chemical science, and by methods far more exact and adequate, are carrying on, in Europe and in America, the work which those men initiated, and are expanding it in all directions. A pupil of Claude Bernard, Pavy realised to the fullest extent the truth that all advances in the study of disease must rest upon investigations into the normal processes of the body, and his memory is reverenced by physiologists, pathologists, and physicians alike. We associate with his name the recognition of postural albuminuria, and the theory that the living gastric wall owes its immunity from auto-digestion to the alkalinity of the blood; but it is chiefly in connexion with the study of carbohydrate metabolism that his name and work will be

remembered. He was the founder of the modern study of diabetes. His labours in that field covered a period of no less than half a century. His first public delivery on the subject dates from 1860, and he dealt with it with undiminished vigour in a course of lectures delivered before the Royal College of Physicians of London in 1908. Thus, even in old age he showed that the keenness of his interest in the subject which he had made his own suffered no abatement; he was ready at all times to defend his views, which, if not always in accord with the trend of contemporary opinion, were based upon his own experimental researches and clinical observation.

It was his work with Claude Bernard which first awakened his interest in such problems, and on his return to London his labours were directed to the extension of his teachers' observations to the domain of pathology. However, as his researches went on he was soon led to dissent from Bernard's views, and in the first edition of his book on diabetes, published in 1862, he expresses his inability to accept the glycogenic theory of carbohydrate metabolism as clearly as in his most recent lectures. He showed that during life the blood in the cavities of the right heart is not richer in sugar than that in other parts of the circulation, and so removed the basis of the theory, then prevalent, that the combustion of sugar is effected in the lungs.

In opposition of the view that sugar is liberated from the store of glycogen in the liver to meet the needs of the tissues he maintained that the small molecules of glucose, if present in a free state in the blood, are of necessity excreted by the kidneys, and that it is erroneous to suppose that only when a certain sugar content of the blood is exceeded does glycosuria ensue. He further maintained that in diabetes the fault lies in a malassimilation of sugar, a failure to incorporate it into larger molecules probably of protein nature, with the result that free glucose enters the circulation, and, as a necessary result, is excreted in the urine. These opinions led to the devotion of much time and labour to the demonstration of the trace of glucose in normal urine and of the carbohydrate fraction in proteins.

Pavy's influence upon the treatment of diabetes is difficult to estimate. There can be no question that during his lifetime great advances were made in the feeding of diabetic patients and in the provision of more satisfactory and less unpalatable bread substitutes for their use. It is certain, too, that he exerted a powerful influence in furthering this progress, as, for example, by the introduction of almond bread. Questions of diet interested him greatly, and apart from his well-known book on food and dietetics, no one has laid greater stress upon the importance of suitable limitations in the treatment of diabetes. In this disease he leaned to the side of strictness in elimination of carbohydrates from the food, holding that no good can result from allowing to the patient materials which he is unable to assimilate rightly. He was a strong upholder of the value of opium and its alkaloids in the treatment of the disease or group of diseases in question, and to him we owe the introduction of codeia as a substitute for opium in the treatment of diabetes. No future writers or workers on diabetes can omit to take Pavy's work into account, and his labours will always be respected, even by those who find themselves least able to accept his views. He has left to those who come after him the example of a long and active life devoted from youth to an honoured old age to the pursuit of scientific work in medicine, work which neither the claims of duty well performed in a large hospital and medical school, nor the strain of a large private practice, ever succeeded in suspending. Fifty years spent in the investigation of a disease, in the laboratory, in the wards, and in the consulting-room, confers an authority which none can gainsay.

We are indebted to Dr. Frederick Taylor for the following note upon Pavy as teacher and hospital physician. Dr. Taylor's words show clearly that Pavy's concentrated interest in his own line of work never seduced him from the discharge of his public or wider responsibilities; he maintained the proper balance between the *savant* and the man of affairs. Dr. Taylor writes: "It is well known that the man of much knowledge is not always a competent teacher, but Dr. Pavy as a lecturer on physiology, the subject in which he early made a reputation, was certainly successful. He was clear, precise, and in simple language put the facts lucidly before his audience, without attempting to enter into unnecessary discussions of theories, in which the majority of the students would probably have taken little interest. He lectured for over 20 years, and for all this period, except the last five years, when he was associated with Dr. Pye-Smith, he delivered the lectures during the whole of the winter session. These were the days before the Vivisection Act, and Dr. Pavy was in the habit of illustrating his lectures, to the great advantage, as I believe, of the student, with occasional demonstrations on the living animal—demonstrations which were judiciously selected and conducted with the greatest skill. The neatness with which Dr. Pavy would cut down upon the vagus, or ligature a vessel in the neck, was very striking. The writer has a vivid recollection of one such lecture, more than 40 years ago, in which Dr. Pavy refuted Bernard's dictum as to the sugar contents of the blood in the hepatic vein; and it has always been to him an instance of the superiority of ocular demonstration, whether by experiment, drawing, or diagram, over mere platform utterances. In his clinical teaching Dr. Pavy was simple, direct, even dogmatic, laying before the student the well-known facts of medicine, and not being inclined to spend time in the consideration of theories for which there might be little evidence. With his interest deeply centred, as no doubt it was, in the relations of diabetes, it might have been thought that his wards would have been full of examples of this disease. This, however, was not the case, though he always had some diabetics under treatment. Unfortunately the class of diabetic case which comes into a general hospital is that which is least suited, both in the form of the disease and in the mental attitude of the patient, to scientific research and observation. And I am afraid that his cases were as prone to resent the restriction of their diet and to partake of forbidden fruit, introduced on visiting days, as those of his colleagues. However, as a clinical teacher he dealt with all subjects alike, clearly and sufficiently if not profoundly, and he attracted a good class to his clinical visits up to the time of his retirement at the age of 61—a retirement which was delayed for one year at the request of the governors in consequence of the rapid depletion of the active medical staff by the loss of five physicians and assistant physicians in six years.

"Dr. Pavy was in all he did methodical, punctual, precise, and never in a hurry. He conscientiously attended all committees requisite for the management of the hospital and medical school, took his share in the responsibility for this very necessary work, and rarely pleaded urgent professional engagements as an excuse for absence. At the same time, as is well known, he had a large private practice, especially among the sufferers from the disease to which he had devoted so much labour, and in renal and digestive disorders. He never relinquished his practice, and saw patients at his house within a few days of his death. To the end he was wrapped up in his work and in his laboratory researches, and except in his holidays, when he was fond of travel, he was content with very little diversion in other directions."

Dr. Pavy married in 1855 Julia, daughter of Mr. William Oliver, by whom he had a daughter Florence, who married the Reverend Borradaile Savory, son of Sir William Savory the famous surgeon, and father of the present baronet.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. A. Hubbell, formerly professor of ophthalmology and otology in the University of Buffalo. Dr. F. W. Page, formerly professor of neurology and psychiatry in the University of Vermont, Burlington. Dr. V. Griffon, physician to the Paris hospitals. Dr. Friedrich Ernst, formerly professor in Zürich. Dr. A. Sitzenfrey, *privat docent* of gynæcology in the University of Giessen. Dr. Christian Gerhard Leopold, an eminent obstetrician and gynæcologist of Dresden, at the age of 65, from heart disease. He began his professional career as assistant to Professor Credé in Leipsic, where he was afterwards extraordinary professor. For the last 30 years he has been director of the Royal Clinic for Women in Dresden, from which post he had arranged to retire on Oct. 1st. He published many papers on obstetrical and gynæcological topics, and was one of the editors of the *Archiv für Gynäkologie*.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bonn:* Dr. Walter Kruse of Königsberg has been appointed to the chair of Hygiene in succession to Dr. Finkler, who is retiring.—*Budapest:* Dr. Bencze has been recognised as *privat-docent* of Medicine and Dr. A. Torday as *privat-docent* of the Pathology of the Circulation.—*Christiania:* At the centenary of the University the following have (amongst others) received the honorary degree of Doctor: Professor Rubner of Berlin, and Professor Strümpell and Professor Rabl of Leipsic.—*Groningen:* Dr. T. S. Steenhuis has been recognised as *privat-docent* of Forensic Medicine.—*Jena:* Dr. T. Meyer-Steinegg, *privat-docent* of the history of medicine, has been promoted to an Extraordinary Professorship.—*Kiel:* Dr. A. Bethe of Strasburg has been appointed to the chair of Physiology in succession to Dr. V. Hensen, resigned.—*Modena:* Dr. E. Cavazza has been recognised as *privat-docent* of Internal Pathology.—*Moscow:* Dr. P. Rybakoff has been promoted to the chair of Neurology and Psychiatry.—*Munich:* The title and rank of Extraordinary Professor have been granted to Dr. Siegfried Oberndorfer, *privat-docent* of pathological anatomy; Dr. Alexander Schmincke, *privat-docent* of general pathology and pathological anatomy; Dr. Otto Neubauer, *privat-docent* of medicine; and Dr. Rudolf Grashey, *privat-docent* of surgery. Dr. Alfred Schönwerth, *privat-docent* of surgery, has been appointed Honorary Professor. Dr. Franz Weber has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Philadelphia (University of Pennsylvania):* Dr. J. H. Austin has been appointed Adjunct Professor of Experimental Medicine.—*Prague (German University):* Dr. Josef Jerie has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Rome:* Dr. Amerigo Filia has been recognised as *privat-docent* of Pædiatry.—*Strasburg:* Dr. C. F. Wenckebach of Groningen has been appointed to the chair of Clinical Medicine in succession to Dr. F. Moritz, resigned.—*Tübingen:* Dr. Paul Linser has been appointed to the newly created chair of Dermatology.—*Vienna:* Dr. Richard V. Wiesner has been recognised as *privat-docent* of Pathological Anatomy.—*Warsaw:* Dr. N. K. Nézhdoff of Kieff has been appointed to the chair of Gynæcology.—*Würzburg:* Dr. Martin Reichardt, *privat-docent* of Psychiatry, has been granted the title of Extraordinary Professor.

THE BIRMINGHAM OPEN-AIR SCHOOL.—The open-air school which Birmingham owes to the generosity of Mr. and Mrs. Barrow Cadbury has recently come into use. About 100 children are accommodated, and they have been carefully selected by the education committee's medical officer, Dr. G. A. Auden. Most of the children are suffering from anæmia, debility, malnutrition, and tuberculous glands. Only those whose home conditions were such that treatment received at the school was likely to be supplemented and followed up by home care and rigid adherence to medical advice were chosen, and a further condition that parents should contribute 1*s.* per week towards the cost of the meals served at the school has been readily complied with.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Sept. 15th. There were present Dr. F. de Havilland Hall, in the chair, Mr. H. P. Symonds (Oxford), Dr. H. A. Sansom, Dr. M. G. Biggs, Dr. F. C. Martley, Mr. J. Brindley-James, Dr. J. W. Hunt, Dr. F. J. Allan, Mr. J. F. Colyer, Dr. W. Knowsley Sibley, and Dr. J. B. Ball. The business of the society during the summer has been exceptionally good. The number of new entrants has been greater than in any similar period of the society's operations, and the sum paid out for sickness claims has been well under the amount expected and provided for in the tables of contributions. The success of the business has enabled the committee to grant a further bonus to the sickness members in the shape of a sum payable at death before the age of 65. The amount so payable varies from £12 to £24, according to the length of membership. Prospectuses and all further particulars on application to Mr. F. Addiscott, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The prizes will be distributed to successful students on Tuesday, Oct. 3rd, at 3 P.M., by the senior physician, Dr. Theodore Dyke Acland, in the Governors' Hall of the hospital.

A DEVONSHIRE CENTENARIAN.—Mrs. Gibbons, of Torquay, celebrated the hundredth anniversary of her birthday last week, and received a congratulatory message from the King.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.—The distribution of prizes to students will take place in the out-patients' hall on Monday, Oct. 2nd, at 3 15 P.M., by H.R.H. the Princess Louise, Duchess of Argyll, president of the hospital. The school, in which extensive alterations have been made, will be open for inspection.

LITERARY INTELLIGENCE. — Messrs W. B. Saunders Company will publish shortly another volume of "Collected Papers" by the staff of the Mayo Clinic. This new work embraces the papers prepared for publication during 1910 by Dr. Chas. H. Mayo and Dr. Wm. J. Mayo and their associates at St. Mary's Hospital, Rochester, Minnesota. The text will be illustrated by some 300 original illustrations.

A WINDFALL FOR SCOTTISH MEDICAL INSTITUTIONS.—Under the will of the late Mr. Edward Davis of Cheltenham a magnificent bequest has been made to Scottish charities. Mr. Davis's fortune amounted to nearly £150,000, but only half of this sum will be required in satisfaction of specific legacies. The residue, which it is expected will amount to £75,000, has been left to trustees with instructions to divide it between such general hospitals and infirmaries in Scotland as they shall select.

THE CATHOLIC NURSING INSTITUTE.—We are frequently asked for the address of a nursing institution where patients are received for medical and surgical treatment for a small fee, so that our readers may be glad to have brought to their notice the Catholic Nursing Institute (60, Lambeth-road) where patients of any religious denomination are received for the sum of £1 1*s.* weekly. There are also a few private rooms for which the charge is £2 2*s.* weekly. The nursing is carried out by the Institute of Trained Nurses of Our Lady of Consolation, and patients are treated either by their own medical men or by the medical officers attached to the institution.

THE HEALTH OF BIRMINGHAM.—There was a considerable improvement in the health of Birmingham last week as compared with the previous week, the total death-rate being 16·7 per 1000, as compared with 20·4; and the zymotic death-rate 3·7, against 6·8. The decline in deaths from diarrhœa and enteritis was from 76 to 45. Stringent by-laws against spitting in the public streets and places within the city have been passed by the city council and are now in force, and the chief constable has been authorised to take such steps as he might consider necessary with regard to their publication and advertisement.

DEATH OF MR. WILLIAM WALTER HARRISON.—A promising career was ended on Sept. 17th by the death of Mr. William Walter Harrison, at the age of 35. Studying at Guy's, he took the diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. in 1899, when he was 23 years of age. He practised at Brighton for some time, and while there was house surgeon at the Brighton, Hove, and Preston Dispensary, and was a member of the local Medico-Chirurgical Society. Unfortunately, he did not have the best of health—in fact, he had to give up his practice and went abroad for a time. Returning, he became resident physician at Manor Valley Sanatorium, Peebles, but illness again overtook him, and he died at Nordrach-on-Dee, Banchory, N.B. He was buried at Keymer, Sussex, by the side of his father and mother.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANKLESARIA, H. N., F.R.C.S. Edin., has been appointed an Examiner in Surgery to the University of Bombay.

CAMPBELL, DONALD, M.D., C.M. Glasg., has been appointed Medical Officer of Health for the Caine (Wilts) Urban District.

DOBSON, J. R. B., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Royal Hospital for Diseases of the Chest, City-road, E.C.

KENNEDY, ROBERT, M.D., M.S. Glasg., has been appointed to the St. Mungo Chair of Surgery in the University of Glasgow.

KERR, J. M. MUNRO, M.D. Glasg., has been appointed to the Muirhead Chair of Obstetrics and Gynæcology in the University of Glasgow.

LEVIN, JOSEPH J., M.B., Ch.B. Edin., has been appointed Obstetric Assistant at the Ladies' Charity and Lying-in Hospital, Liverpool.

MCCULLOCH, J., M.R.C.S. Eng., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Bexhill-on-Sea District of the county of Sussex.

MORRIS, R. OWEN, M.D. Edin., D.P.H., has been appointed Lecturer to the Welsh National Memorial inaugurated for the Treatment of Tuberculosis.

WALTERS, ENID, M.B. Lond., has been appointed Fourth Assistant Medical Officer and Pathologist at the Devon County Asylum.

WILSON, S. RAWSON, M.B., B.S. Lond., F.R.C.S. Edin., has been appointed Anæsthetist to the Salford Royal Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD BOROUGH HOSPITAL.—Senior Resident House Surgeon. Salary £100 per annum.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer and Resident Surgical Officer for six months. Salary in each case £80 per annum, with board, washing, and attendance.

BIRMINGHAM, CITY EDUCATION COMMITTEE.—Medical Officer for Inspection of School Children. Salary £250 per annum.

BIRMINGHAM CITY FEVER HOSPITAL, Little Bromwich.—Medical Superintendent. Salary £250 per annum, with board and residence.

BIRMINGHAM, UNIVERSITY OF.—Lecturer in Physiological Department. Salary £150 per annum.

BODMIN, CORNWALL COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £140 per annum, with rooms, rations, laundry, and attendance.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons for six months. Salary at rate of £75 per annum, with board and residence.

BRADFORD ROYAL INFIRMARY.—House Physician, unmarried, for six months. Salary at rate of £100 per annum, with board, residence, and washing.

BRISTOL ROYAL INFIRMARY.—House Surgeon. Salary £100 per annum, with apartments, board, and laundry.

BURSLEM, HAYWOOD HOSPITAL.—Resident Medical Officer (female). Salary £100 per annum, with board, residence, and laundry.

BURY INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CAMBERWELL PROVIDENT DISPENSARY.—Two vacancies on Medical Staff.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Second House Surgeon. Salary £80 per annum, with board, residence, and laundry.

CARLISLE DISPENSARY.—Resident Medical Officer. Salary £150 per annum, with apartments.

CARSHALTON, QUEEN MARY'S HOSPITAL FOR CHILDREN.—Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

CHARTHAM, NEAR CANTERBURY, KENT COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £122 per annum, with quarters, washing, &c.

CHESTER, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—House Physician. Salary £80 per annum, with board, apartments, and laundry.

CROOKSBURY SANATORIUM, Farnham, Surrey.—Resident Medical Officer.

COLCHESTER, ESSEX COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Two Junior House Surgeons. Salary £80 per annum, with rooms, board, washing, and attendance.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, apartments, laundry, &c. Also House Surgeon, unmarried Salary £125 per annum, with apartments, board, laundry, &c.

DOWNPATRICK, DOWN DISTRICT LUNATIC ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with apartments, board, washing, &c.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons, all for six months. Salary in each case £50 per annum, with board, residence, and washing. Also Honorary Anæsthetist.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £75 per annum, with residence, board, and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Second Medical Officer for six months. Salary at rate of £40 per annum, with luncheon and tea provided.

EAST SUFFOLK COUNTY EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.

ENNISKILLEN, FERMANAGH COUNTY HOSPITAL.—House Surgeon. Salary £72 per annum.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—House Physician and Assistant House Surgeon for six months. Salary at rate of £60 per annum, with board, apartments, and washing.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.—Medical Officer. Salary 25 guineas per annum.

HASTINGS, EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary at rate of £60 per annum, with residence, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Casualty Medical Officer, unmarried, for six months. Salary £30, with board, residence, &c.

HULL ROYAL INFIRMARY.—Two Casualty House Surgeons. Salary at rate of £80 per annum, with board and lodging.

LEEDS GENERAL INFIRMARY.—Resident Medical Officer. Salary £150 per annum, with board, residence, and washing.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

LINCOLN GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £300 per annum, with apartments, &c.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—Honorary Assistant Surgeon.

LIVERPOOL WORKHOUSE HOSPITAL, Brownlow Hill.—Two Resident Assistant Medical Officers. Salaries £120 and £100 per annum respectively, with apartments, &c.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £100 per annum, with board, residence, and laundry.

MELROSE, ROXBURGH DISTRICT ASYLUM.—Assistant Medical Officer. Salary £160 per annum, with board, lodging, and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon for six months. Salary of House Physician and House Surgeon at rate of £60 per annum, with board and washing. Salary of Assistant House Physician and Assistant House Surgeon at rate of £40 per annum, with board and washing. Also Ophthalmic Surgeon.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary at rate of £80 per annum, with board, attendance, and laundry.

NEWCASTLE THROAT, NOSE, AND EAR HOSPITAL.—Two Honorary Assistant Surgeons.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Three House Physicians, Four House Surgeons, One Accident Room House Surgeon, One House Surgeon to the Aural and Ophthalmic Departments, One House Surgeon to the Skin and Gynæcological Departments, and One House Surgeon to Out-patients.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician. Salary £100 per annum, with board, lodging, and washing.

NOTTINGHAM WORKHOUSE INFIRMARY.—Resident Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, washing, and attendance.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon for six months. Salary in each case at rate of £52 10s. per annum, with board and residence.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—Assistant Surgeon.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—House Physician for six months. Salary £75 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, residence, and washing.

ROYAL EAR HOSPITAL, Soho.—House Surgeon. Salary £40 per annum. Also Assistant Surgeon.

ROYAL EYE HOSPITAL, Southwark, S.E.—House Surgeon for six months. Salary 50 guineas per annum, with board and residence.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—House Physician and House Surgeon for six months. Board, lodging, and washing provided. Also House Physician and House Surgeon (females). Board, lodging, and washing provided.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—Clinical Assistant. Also Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.—Resident House Surgeon, unmarried, for six months. Salary £100 per annum, with board, residence, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Honorary Gynæcologist.

SALFORD ROYAL HOSPITAL.—Casualty House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Resident House Surgeon. Salary £80 per annum, with board and residence.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £100 per annum, with rooms, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich Grove, S.E.—Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, washing, and residence.

TAUNTON AND SOMERSET HOSPITAL.—Resident Assistant House Surgeon for six months. Salary at rate of £70 per annum, with board, lodging, and laundry.

THROAT HOSPITAL Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry. Also Honorary Assistant Registrar.

WALSALL AND DISTRICT HOSPITAL.—House Physician and Casualty Officer. Salary £80 per annum, with board, residence, and laundry.
WESTMINSTER HOSPITAL.—Assistant House Physician for three months. Board provided.
WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Caldicot, in the county of Monmouth; at Cardiff, in the county of Glamorgan; and at Portumna, in the county of Galway.

Births, Marriages, and Deaths.

BIRTHS.

BAGSHAWE.—On Sept. 21st, at the Manor House, Rickmansworth, to Dr. and Mrs. Arthur G. Bagshawe—a son.
VERNON.—On Sept. 21st, at Norham-road, Oxford, the wife of H. M. Vernon, M.D., of a daughter.

MARRIAGES.

COLLINS—HATCHARD SMITH.—On Sept. 20th, at Christ Church, Epsom, Michael Abdy Collins, B.S., M.D. Lond., to Sybil, youngest daughter of J. Hatchard Smith, F.R.I.B.A.
ILIEWICZ—HELE.—On Sept. 21st, at Holy Trinity, Balham, S.W., Fleet-Surgeon Henry F. Iliewicz, M.B., R.N., of H.M.S. *Indomitable*, to Bessie E. Hele, daughter of the late G. F. Hele, of Stoke Devonport, and of Mrs. Hele, of St. Ives, Hunts.
MUSGROVE—PETTIGREW.—On Sept. 20th, at All Souls, London, James Musgrove, M.D., F.R.C.S., to Elsie Bell Pettigrew, second daughter of the late Sir William Gray.

DEATHS.

ANDREW.—On Sept. 19th, at Atholl-crescent, Edinburgh, James Andrew, M.D., F.R.C.P.E.
CONOLLY.—On Sept. 19th, at Bassett-road, North Kensington, W., Stephen Fullom Conolly, M.R.C.S., L.R.C.P., in his 62nd year.
PAVY.—On Sept. 19th, at Grosvenor-street, W., Frederick William Pavy, M.D., F.R.S., LL.D., in his 83rd year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

CROSBY LOCKWOOD AND SON, London.
The Sewerage of Sea Coast Towns. By Henry C. Adams, Assoc.M. Inst.C.E., M.I.Mech.E., A.M.I.E.E., M.R.San.I. Price 5s. net.

GOLDSCHMIDT, J., Heiligegeiststrasse, 52, Berlin, C.2.
Hand- und Lehrbuch meiner Reflexmassage für den Praktischen Arzt. Ein neuer, praktischer Weg zur Diagnose, Therapie und Prophylaxe der Krankheiten. Von Dr. B. Barczewski, Stabsarzt d.L. Berlin-Schöneberg. Price M.3.50.

HARPER AND BROTHERS, London and New York.
Chemical Phenomena in Life. By Frederick Czapek, M.D., Ph.D., Professor of Plant Physiology in the University of Prague. Price, cloth, 2s. 6d. net.
The Ancient Egyptians and Their Influence upon the Civilisation of Europe. By G. Elliot Smith, M.A., M.D., F.R.S., Professor of Anatomy in the University of Manchester. Price, cloth, 2s. 6d. net.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London.
The Hunterian Lectures on Colour-Vision and Colour-Blindness. Delivered before the Royal College of Surgeons of England on Feb. 1st and 3rd, 1911. By Professor F. W. Edridge-Green, M.D. Durh., F.R.C.S. Eng., Beit Medical Research Fellow. Price 3s. 6d. net.

MACMILLAN AND CO., LIMITED, London.
A Practical Handbook of the Diseases of the Ear. For Senior Students and Practitioners. By William Milligan, M.D., Aurist and Laryngologist to the Royal Infirmary, Manchester, Surgeon to the Manchester Ear Hospital; and Wyatt Wingrave, M.D., Pathologist (lately Physician) to the Central Throat and Ear Hospital, London, and to the Polyclinic, London. Price 15s. net.

UNIVERSITY OF BRISTOL, Registrar of, Bristol.
University of Bristol. Calendar, 1911-12. Price not stated.

UNIVERSITY PRESS, Cambridge.
A Text-book of Experimental Psychology, with Laboratory Exercises. By Charles S. Myers, M.A., M.D., Sc.D., of Gonville and Caius College, University Lecturer in Experimental Psychology, Cambridge. Second edition. Part I. Text-book. Part II. Laboratory Exercises. Price 10s. 6d. net.

WILEY, JOHN, AND SONS, New York. CHAPMAN AND HALL, LIMITED, London.
Immune Sera. A Concise Exposition of the Main Facts and Theories of Infection and Immunity. By Dr. Charles Frederick Bolduan, Bacteriologist, Research Laboratory, Department of Health, City of New York. Fourth edition, rewritten and enlarged. First thousand. Price, cloth, $1.50.
Manual of Psychiatry. By J. Rogues de Fursac, M.D., formerly Chief of Clinic at the Medical Faculty of Paris, Physician in Chief of the Public Insane Asylums of the Seine Department. Translated and edited by A. J. Rosanoff, M.D., Second Assistant Physician, Kings Park State Hospital, N.Y. Third American from the Third French Edition. Revised and enlarged. Price $2.50 net.

Notes, Short Comments, and Answers to Correspondents.

HEALTH AND SANITATION IN MALTA.

A REPORT on the Malta Blue-book for the year 1910-11, prepared by the Hon. E. P. S. Roupell, D.S.O., has just been issued from the Colonial Office. According to a census taken on April 2nd, 1911, the civil population of the islands numbered 211,473. The birth-rate was 36·12 per 1000, as compared with 36·07 in the previous year, whilst the average birth-rate for the last 12 years was 38·26 per 1000. The death-rate of the civil population was 21·42 per 1000, as against 22·57 in 1909-10. The general state of health was satisfactory, and the colony was not visited by any epidemic. There were 43 cases of small-pox (with four deaths), all imported. The incidence of enteric fever was normal, and the cases were not confined to any particular town or village. Mediterranean fever has shown a considerable decrease among the civil population and has practically ceased altogether in the fleet and garrison. The number of vaccinations performed by district medical officers in Malta and Gozo was 6565, of which 6451 were successful. The death-rate amongst children under 12 months was 236·93 por 1000 births, as against 242·46 in the preceding year. There was also a slight decrease in the death-rate of children under five years. During the year several works under the general drainage scheme were carried out. The total number of persons admitted into the hospitals and maintained in the other charitable institutions of Malta and Gozo was 8182, as against 7309 in 1909-10. In addition to these, 119,893 persons were attended by the district medical officers at the Government dispensaries or at their own homes.

The mean temperature for the summer months was 73·9°, and for the winter months 53·7°. The highest temperature in the shade was 92·7° on July 20th, 1910, and the lowest 39·7° on Feb. 10th, 1911. The total rainfall was 18·976 inches, or 5·367 less than that of the previous year. The average rainfall for the last ten years was 22·260 inches.

HOW TO SPREAD INFECTION.

A MAN described as a working tailor, and living in [St. James's, S.W., was summoned at the Marlborough-street police-court recently for taking his son, whom he knew to be suffering from scarlet fever, in a public vehicle from St. James's to Bethnal Green. The medical man whom he had consulted gave evidence that he had told the defendant what was the matter with the boy, and Dr. F. J. Allan, medical officer of health to the City of Westminster, informed the magistrate that the defendant had said to him that he took his son in a taxi-cab to the East-end to the house of a relative because he did not believe in the medical practitioners of the West-end, preferring those of the East-end. Mr. Mead endeavoured to impress upon the defendant the cruelty of his conduct in recklessly exposing to infection a number of persons who might use the same taxi-cab afterwards, but taking into consideration his apparently humble position inflicted a fine of 15s.

A CLOSED CONGRESS.

A RECENT message from Reuter's Moscow correspondent, which appeared as a small paragraph in some English newspapers, must have given rather a shock to medical men in this country, who are unaccustomed to the idea of police interference in scientific discussions, and do not naturally associate neurological congresses with politics. The paragraph ran as follows: "Moscow, Sept. 17th. The Congress of Specialists in Nervous and Mental Diseases which was opened here to-day was closed by the police official in attendance owing to the sharp criticism of the Government contained in a speech made by Professor Sertsky."

ENDOLYTIC TUBES FOR CLINICAL DIAGNOSIS.

THE capillary tube and its well-known peculiar force supply an ingenious and delicate means of clinically testing urine for albumin or sugar. The endolytic tube represents a tiny test-tube in which a negative or positive result can be equally well observed. The capillary tube is charged with the sensitive and trustworthy agent, salicyl-sulphuric acid, for albumin; a column about half an inch long is left at the end of the tube, both ends being open. The capillary attraction is capable of drawing up a longer column than this, and so when the tube is dipped into the urine to be tested a column of urine of about equal length pushes the column of reagent forward. In a moment they mingle, and in the presence of albumin an unmistakeable turbidity appears, its density depending upon the quantity of albumin present. Similarly, capillary tubes are charged with Fehling's solution, and when some boiling water is poured over the tube, after some urine has been drawn up by capillarity, the reduction to red cuprous oxide is readily observed when sugar is present. The endolytic tubes are supplied sealed with a definite quantity of reagent in them. They are generally overcharged, so as to allow of the adjustment of a column of reagent at

the end of the tube sufficient for the reaction, and the fluid should be short of the full capillary attraction of the tube, so that when the endolytic tube is dipped into the urine a column of about equal length enters for the test. We have tried the use of the tubes with solutions of sugar and albumin, and the results were very plainly revealed. They should be very useful for clinical purposes, especially as they contain reliably prepared reagents which are kept sealed against any disturbing influences; they need not be opened until immediately prior to making a test. Specimens were submitted to us by the Endolytic Tube Co., Hampton-on-Thames.

Tropics will be grateful to readers of THE LANCET who can recommend him any book or books on the subject of tropical and sub-tropical diseases. "Is there any book or books," he asks, "not too extensive where one could get a short description of the diagnosis and treatment of such diseases, suitable for a man who has been appointed medical officer to a rubber estate in the Malay States?"

Medicus would like to hear from any reader of THE LANCET who may have observed attacks of asthma following the administration of ordinary doses of aspirin.

Scot.—It would be quite incorrect to style him "Dr.," and if he intends to finish his curriculum such action might be prejudicial to his future.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for October, 1911:—

April October.—Rome Exhibition (United Italy's Jubilee).
,, 28th–Oct. 26th (Turin).—International Exhibition.
May 3rd–Oct. 31st (Glasgow).—Scottish Exhibition.
,, 6th–Oct. 31st (Dresden).—International Hygiene Exhibition (British Section opens June 14th).
May 12th–Oct. 31st (London, Crystal Palace).—Festival of Empire Imperial Exhibition. (Profits to King Edward VII. Hospital Fund.)
May 18th–October 31st (London, Shepherd's Bush).—Coronation Exhibition.
Sept. 19th–Oct. 31st (London).—Earl's Court Exhibition.
,, 23rd–Oct. 21st (London, Olympia).—Electrical Exhibition.
,, 24th–30th (Karlsruhe).—Eighty-third Meeting of German Physicists and Physicians.
,, 26th–30th (Brussels).—Third Congress of the International Society of Surgery and Exhibition of Fractures.
,, 28th–30th (Dresden).—International Congress for the Protection of Mothers and Sexual Reform.
,, 30th (Bruges).—Sixth Belgian Congress of Neurology and Psychiatry.
September–November (Antwerp).—International Exhibition of Alimentation, Brewing, Wines, and Liqueurs.
Oct. 1st–4th (Liége).—Second Congress of Alimentation.
,, 2nd–4th (Frankfurt-a-Main).—Fifth Annual Meeting of the Society of German Neurologists.
,, 2nd–5th (Turin).—International Congress of Pathology.
,, 2nd–6th (London, Royal Horticultural Hall).—Seventh London Medical Exhibition.
,, 2nd–7th (Dresden).—Third International Housing Congress.
,, 2nd–7th (Paris).—French Congress of Surgery, Twenty-fourth Annual Congress.
,, 3rd–5th (Turin).—Ninth National Congress of Medici Condotti.
,, 3rd–6th (London).—Dairy Show.
,, 5th–7th (Paris).—Fifteenth Meeting of the French Association of Urology.
,, 6th and 7th (Paris).—French Association of Pediatrics.
,, 9th–12th (Turin).—Twenty-first Congress, Italian Society of Internal Medicine.
,, 9th–13th (Cologne).—Seventh International Congress of Criminal Anthropology.
,, 10th (Paris).—International Sanitary Conference (to Revise the International Sanitary Convention of 1903).
,, 12th–18th (Rome).—Fifth Annual Meeting of the Italian Society for the Advancement of Science.
,, 13th–16th (Turin).—Third National Congress of Professional Diseases.
,, 15th (The Hague).—International Opium Conference.
,, 20th–22nd (Roubaix).—Second National Congress of the Mutalité Maternelle.
,, 22nd and 23rd (Lyons).—Twelfth French Congress of Medicine.
,, 25th–27th (New York City).—Annual Conference of Sanitary Officers of the State of New York.
,, 26th–28th Rome).—Congress of the Italian Society of Laryngology, Otology and Rhinology.
,, 31st–Nov. 4th (London, Royal Horticultural Hall).—Twenty-second Universal Cookery and Food Exhibition.
October (Paris).—First Congress of the International Medical Association for the Prevention of War.
,, (Stoke-upon-Trent).—Church Congress.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

THURSDAY.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION (Hon. Secretaries—J. H. Targett, W. W. H. Tate), at 11, Chandos-street, W.: at 8 P.M.

Specimens:
Dr. Maxwell: Unruptured Tubal Gestation at the Fourth Month.
Mr. Malcolm: Large Fibro cystic Tumour of the Perineum.
Dr. McCann: (1) Soft Fibroma of the Pelvic Connective Tissue forming a Large Perineal Tumour; (2) Hæmatometra and Hæmatosalpinx associated with Absence of the Vagina.
Dr. Macnaughton-Jones: Some Rare Books Presented by Prof. Klein of Munich.

Inaugural Address at 9 P.M.:
The President (Dr. Amand Routh).

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Opening Address:—Mr. B. G. A. Moynihan: Dyspepsia, Surgical View.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. G. Adamson: Clinique (Skin). 5.15 P.M., Lecture:—Dr. T. D. Lister. Phthisis in Relation to Life Assurance.
TUESDAY.—4 P.M., Dr. R. C. Jewesbury: Clinique (Medical). 5.15 P.M., Lecture:—Dr. T. Hyslop: General Paralysis of the Insane.
WEDNESDAY.—4 P.M., Mr. C. Rowntree: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. A. F. Tredgold: Certifiable Lunacy.
THURSDAY.—4 P.M., Mr. W. F. Fedden: Clinique (Surgical). 5.15 P.M., Lecture:—Mr. D'Arcy Power: The Treatment of Ulcerative Colitis.
FRIDAY.—4 P.M., Mr. E. Clarke: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Bishop Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. Bishop Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnough Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
TUESDAY.—2 P.M., Operations. 3.15 P.M., Dr. R. Wells: Medicine. 2.15 P.M., Mr. R. Carling: Surgery. 4.15 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Sir J. Rose Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—10 A.M., Radiography. 11 A.M., Dr A. Davies: Pathological Demonstration. 2 P.M., Operations. Out-patient Demonstration:—10 A.M., Surgical and Medical. 11 A.M., Eye.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. W. Stuart-Low: Methods of Examination.
FRIDAY.—3.30 P.M., Lecture:—Dr. Dan McKenzie: The Labyrinth Tests in Practice.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Essentials to the Study of Dermatology.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (3rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London, (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.) Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (4th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's 2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (5th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M., Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.)., Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (7th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.), Hospital operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. I. of 1911, which was completed with the issue of June 24th, were given in THE LANCET of July 1st.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1911 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 27th, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 21	29·43	S.W.	0·11	109	62	48	49	51	Fine
,, 22	29·79	N.W.	0·02	99	62	47	47	49	Overcast
,, 23	29·84	N.W.	...	108	67	49	53	56	Fine
,, 24	29·81	N.W.	0·27	116	68	50	52	56	Fine
,, 25	30·12	W.	...	107	68	48	52	54	Fine
,, 26	30·10	W.	0·01	105	70	54	56	58	Fine
,, 27	30·21	S.W.	...	111	70	54	56	59	Fine

The following journals, magazines &c., have been received:—Medico-Legal Journal, Medico-Surgical Journal of the Tropics, Archives of Internal Medicine, Recueil d'Ophtalmologie, Bristol Medico-Chirurgical Journal, Tuberculosis, Revue d'Hygiène, Revue de Gynécologie, Annales des Maladies des Organes Génito-Urinaires, Hospital Assistant, Malaya Medical Journal, Canadian Medical Association Journal, Journal of Tropical Medicine and Hygiene.

Communications, Letters, &c., have been received from—

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